AMERICAN

RAILROAD JOURNAL.

STEAM NAVIGATION, COMMERCE, MINING, MANUFACTURES.

HENRY V. POOR, *Editor.*

ASSISTANT EDITORS:

JAMES T. HODGE, *For Mining and Metallurgy.*
CHARLES T. JAMES, *For Manufactures and the Mechanic Arts.*
M. BUTT HEWSON, *For Civil Engineering.*

SATURDAY, SEPTEMBER 14, 1850.

Second Quarto Series, Vol. VI., No. 37.---Whole No. 752, Vol. XXIII.

ESTABLISHED IN 1831.

NEW-YORK:

PUBLISHED WEEKLY, BY

JOHN H. SCHULTZ & CO.

Room 12, Third Floor,

No. 136 Nassau Street.

AMERICAN

RAILROAD JOURNAL.

STEAM NAVIGATION, COMMERCE, MINING, MANUFACTURES.

HENRY V. POOR, Editor.

SATURDAY, SEPTEMBER 14, 1850.

NEW-YORK:

PUBLISHED WEEKLY, BY

JOHN B. SCHELTZ & CO.

No. 139 Nassau Street.

IRON BRIDGES, BRIDGE & ROOF BOLTS, etc. STARKS & PRUYN, of Albany, New York. having at great expense establishe. a manufactory with every facility of Machinery for Manufacturing Iron Bridges, Bridge and Roof Bolts, together with all kinds of the larger sizes of Screw Bolts, Iron Railings, Steam Boilers, and every description of Wrought Iron Work, are prepared to furnish to order, on the shortest notice, any of the above branches, of the very best of American Refined Iron, and at the lowest rates.

During the past year, S. & P. have furnished several Iron Bridges for the Erie Canal, Albany Basin, etc. —and a large amount of Railroad Bridge Bolts, all of which have given the most perfect satisfaction.

They are permitted to refer to the following gentlemen:

Charles Cook, Nelson J. Beach, Jacob Hinds,	Canal Commissioners of the State of New York.
Willard Smith, Esq.,	Engineer of the Bridges for the Albany Basin.
Messrs. Stone & Harris, Mr. Wm. Howe,	Railroad Bridge Builders, Springfield, Mass.
Mr. S. Whipple,	Engineer & Bridge Builder, Utica, N. Y.

January 1, 1849.

TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.

PASCAL IRON WORKS.

WELDED WROUGHT IRON TUBES

From 4 inches to ¼ in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T's, L's, and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER Flues.

Manufactured and for sale by

MORRIS, TASKER & MORRIS.

Warehouse S. E. Corner of Third & Walnut Streets,

PHILADELPHIA.

Fire Brick.

THE Subscribers have constantly on hand Rafford's Stourbridge, Oak Farms Stourbridge, Lister, Wortley, Red and White Welsh Fire Bricks, common and fancy shapes. Also,

ROOFING SLATES,

from the best Welch quarries, and of all sizes. Also

COAL,

of all kinds—Liverpool Orrell and Cannel, Scotch, New Castle, Pictou, Sidney, Cumberland, Virginia, and all kinds of Anthracite coals. Also,

Pig Iron, Salt, etc., etc., for sale at the lowest market price. Apply to

SAMUEL THOMPSON & NEPHEW,
275 Pearl and 43 Gold Sts., New York.

November. 23, 1849.

Patent India Rubber Steam Packing.

THIS article, made by the subscriber, who alone is authorised to make it, is warranted to stand as high a degree of heat *as any that has been or can be made by any person*—and is the article which has made the reputation of India Rubber Steam Packing and the demand therefor. A large assortment of all thicknesses requisite for any description of engines, steam pipes, valves, etc., constantly on hand and for sale by the manufacturer and patentee, who will give every information regarding its properties, mode of use, etc. at the warehouse. JOHN GREACHEN, JR.,
98 Broadway, opposite Trinity Church.

New York, October, 1849.

To Railroad Companies, etc.

The undersigned has at last succeeded in constructing and securing by letters patent, a Spring Pad-lock which is secure, and cannot be knocked open with a stick, like other spring locks, and therefore particularly useful for locking Cars, and Switches, etc.

Companies that are in want of a good Pad-lock, can have open samples sent them that they may examine and judge for themselves, by sending their address to C. LIEBRICH,
46 South 8th St., Philadelphia.

November 3, 1849. 6m*

RAILROAD India-rubber Springs.

IF any Railroad Company or other party desires it, the NEW ENGLAND CAR COMPANY will furnish India-rubber Car Springs made in the form of washers, with metalic plates interposed between the layers, or in any other form in which they can be made; in all cases guaranteeing the right to use the same against any and all other pretended rights or claims whatsoever.

F. M. Ray, 98 Broadway, New York.
E. CRANE, 99 State Street, Boston.
1849.

MACHINE WORKS OF ROGERS KETCHUM & GROSVENOR, *Patterson, N. J.* The undersigned receive orders for the following articles manufactured by them of the most superior description in every particular. Their works being extensive, and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and dispatch.

Railroad Work.—Locomotive Steam Engines and Tenders; Driving and other Locomotive Wheels, Axles Springs and Flange Tires; Car Wheels of Cast Iron a variety of patterns and chills; Car Wheels of Cast Iron with wrought tires; Axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and millwright work generally, hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR,
Patterson, N.J. or 74 Broadway, New York.

THE NEWCASTLE MANUFACTURING Co. continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack Screws, Wrought Iron Work and Brass and Iron Castings, of all kinds connected with Steamboats. Railroads, etc.; Mill Gearing of every description; Cast Wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention.

ANDREW C. GRAY,
President of the Newcastle Manuf. Co.

DEAN, PACKARD & MILLS,

MANUFACTURERS OF ALL KINDS OF

RAILROAD CARS,

SUCH AS

PASSENGER, FREIGHT AND CRANK CARS

— ALSO —

SNOW PLOUGHS AND ENGINE TENDERS OF VARIOUS KINDS.

CAR WHEELS and AXLES fitted and furnished at short notice; also, STEEL SPRINGS of various kinds; and

SHAFTING FOR FACTORIES.

☞ *The above may be had at order at our Car Factory*

REUEL DEAN,
ELIJAH PACKARD, } SPRINGFIELD, MASS.
ISAAC MILLS,

1y48

Iron Safes.

FIRE and Thief-proof Iron Safes, for Merchants, Banks and Jewelers use. The subscriber manufactures and has constantly on hand, a large assortment of Iron Safes, of the most approved construction, which he offers at much lower rates than any other manufacturer. These Safes are made of the strongest materials, in the best manner, and warranted entirely fire proof and free from dampness. Western merchants and the public generally are invited to call and examine them at the store of E. Corning & Co. sole agents, John Townsend, Esq., or at the manufactory.

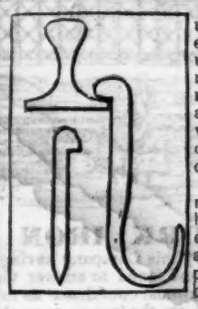
Each safe furnished with a thief-detector lock, of the best construction.

Other makers' Safes repaired, and new Keys and Locks furnished at the shortest notice.

H. W. COVERT
cor. Steuben and Water sts. Albany

August 24, 1848.

Patent Self-clinching Railroad Spikes.



These spikes have been in use upon various roads for several years, and have met with universal approval by Engineers. They drive in the manner shown, turning themselves, and are therefore not liable to work loose. They will prove of great value to secure the chair.

We are also manufacturin railroad spikes, hook and fla head; wrought chairs, clamps, etc., of superior quality, and are prepared to contract for any pattern or weight upon favorable terms.

SMITH & TYSON,
25 South Charles st., Baltimore Md.

P. H. Griffin,

Corner of Steuben and James Sts. Albany, N.Y.,

CONTINUES to manufacture copper flues for locomotive boilers, brewers' coppers, stills, tanner heaters, etc. Copper work in general, at the shortest notice. He has constantly on hand brass cocks, brass valves, copper pumps of every variety.

Orders promptly attended to. 1y14

Mattewan Machine Works.

THE Mattewan Company have added to their Machine Works an extensive LOCOMOTIVE ENGINE department, and are prepared to execute orders for *Locomotive Engines* of every size and pattern—also *Tenders, Wheels, Axles*, and other railroad machinery, to which they ask the attention of those who wish such articles, before they purchase elsewhere.

STATIONARY ENGINES, BOILERS, ETC., Of any required size or pattern, arranged for driving *Cotton, Woollen, or other Mills*, can be had on favorable terms, and at short notice.

COTTON AND WOOLLEN MACHINERY, Of every description, embodying all the modern improvements, second in quality to none in this or any other country, made to order.

MILL GEARING,

Of every description, may be had at short notice, as this company has probably the most extensive assortment of patterns in this line, in any section of the country, and are constantly adding to them.

TOOLS.

Turning Lathes, Slabbing, Planing, Cutting and *Drilling Machines*, of the most approved patterns, together with all other tools required in machine shops, may be had at the Mattewan Company's Shops, Fishkill Landing, or at 66 Beaver street, New York.

WM. B. LEONARD. *Agent.*

Gloucester Iron Works,

GLOUCESTER, NEW JERSEY,

NEARLY OPPOSITE PHILADELPHIA.

THE subscribers having made extensive alterations in their works, are now prepared to receive orders for all kinds of Stationary and Marine Engines, Boilers, Locomotives, Sugar Mills, and every description of Mill Work.

Also—Orders for Iron and Brass Castings executed with despatch.

Having secured the valuable services of Mr. David Matthew as Superintendent (who has been for five years foreman in the Iron Works of John Watchman, now the Vulcan Works, Baltimore, and for 12 years superintendent of the Mohawk and Hudson and the Utica and Schenectady Railroads, New York,) they feel confident that all orders entrusted to them will be faithfully executed.

Having an extensive Wharf in front of their works, it will afford a safe harbor for all classes of steam vessels that may require repairs during the winter.

C. M. & J. C. SITER.

Gloucester, July 24, 1850. 1m.

NEW YORK IRON BRIDGE COMPANY.

The Bridges manufactured by this Company having been fully tested on different Railroads, by constant use for more than two years, and found to answer the full expectations of their most sanguine friends, are offered to the public with the utmost confidence as to their great utility over any other Bridge now known.

The plan of this Bridge is to use the iron so as to obtain its greatest longitudinal strength, and at the same time it is so arranged as to secure the combined principles of the *Arch, Suspension and Triangle*, all under such controlling power as causes each to act in the most perfect and secure manner, and at the same time impart its greatest strength to the whole work.

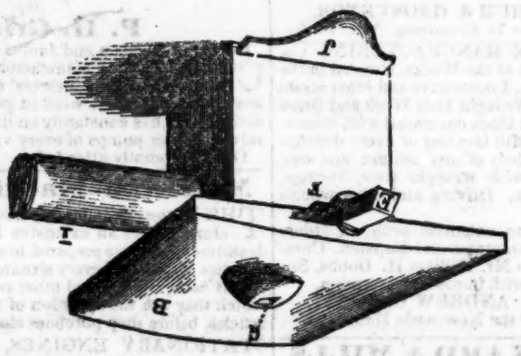
The New York Iron Bridge Company are prepared to furnish large quantities of Iron Bridging for Railroad or other purposes, at short notice, and at moderate prices.

Models, and pamphlets giving full descriptions of the above Bridge, with certificates based on actual trial from undoubted sources, will be found at the office of the Company, 39 Jauncey Court, Wall st., or of W. Rider & Brothers, 19 *Nassau Street*, where terms of contract will be made known, and where orders are solicited.

M. M. WHITE,
Agent for the Company.

August 29, 1849.

E. Harris' Patent Rotary Blacksmith Tuyere.



LETTERS Patent were issued January 9, 1849, to E. Harris, of Springfield, for an Improved Rotary Blacksmith Tuyere. Since that time there have been some hundreds put in operation, giving satisfaction and full proof of superiority over all others.

This Tuyere is so arranged that by one movement it can be changed from the largest work to the smallest; at the same time the fire is changed in proportion, thereby making a great saving in coal. Words cannot convey the full merits of this Tuyere; nor is it deemed necessary to speak in disparagement of other Tuyeres, as every smith is capable of judging for himself, and will give merit where merit is due.

I will simply say that there has not been a single instance where I have had my Tuyere put in use but it has given full satisfaction, and is recommended by all who have used them, as being superior to any other ever introduced. I would invite all to give them a trial; and the names of those using them being given, I hope it may induce others to try them—they recommend themselves.

Western Railroad Shop,	Springfield,	Mass.
" "	Pittsfield,	"
Connecticut val."	Springfield	"
" "	N. Hampton	"
Hartford "	Hartford,	Conn.
New Haven "	New Haven	"
Norwich and Worcester,	Norwich	"
N. York and N. Haven,	New Haven	"
Saratoga and Whitehall,	Saratoga,	N. Y.
Vermont Central,		
Hudson and Berkshire,	Hudson,	
L. Kingsley,	Canton,	Mass.
Hadley Falls Co.	Ireland, W. Springfield,	Mass.
Sidney Patch,	Boston,	"
Amea Manuf. Cor.,	Chickopee,	"
American Machine w'ks,	Springfield	"
Dean, Pickard & Mills	"	"
G. Frank Bradley,	N. Haven,	Conn.
Andrew Baird,	"	"
Collis & Lawrence	"	"
Slate & Brown,	Windsor Locks,	
Gage,	Nashua,	N. H.
Machine shop,	Manchester,	"
Louis F. Lanney,	Baltimore,	Md.
J. H, Baerdid,	179 Chambers st.	N. Y.
J. Fanning	Rochester,	"
G. W. Hunt	41 Gold st.	"
Chamberlain & Waldo,		"
P. S. Burges, carriage maker,		"
Samuel Miller,		"
J. Leggett,	Steverson falls,	"
J. F. Harris,	Hillsdale,	"
John L. Graham,	Albany,	"
David Dalsell,	South Egremont,	Mass.
Roys & Wilcock,	Berlin,	Conn.

Agents for the sale of Tuyeres:
B. B. Stevens in New York and Connecticut.
A. J. VanAllen has the Agency for the Western and Southern States, and is now travelling through those States. Any communication addressed to the patentee will receive prompt attention.

E. HARRIS, Patentee,
Springfield, Mass.

November 23, 1849.

Railroad Lanterns.

COPPER and Iron Lanterns for Railroad Engines, fitted with heavy silver plated Parabolic Reflectors of the most approved construction, and Solar Argand Lamps; manufactured by

HENRY N. HOOPER & CO.,
No. 24 Commercial St. Boston.

August, 16, 1849. 6m33

Gas Fixtures.

FIXTURES for Burning Gas for Lighting Public Buildings, Private Dwellings, Stores and Factories, manufactured by the subscriber in great variety. Orders by Mail, or left at the Factory on Causeway street, will be promptly attended to.

HENRY N. HOOPER & CO.

Boston, March 23, 1850. 6m13

F. M. Ray's Patent India-rubber Car Springs.

India-rubber Springs for Railroad Cars were first introduced into use, about two years since, by the inventor. The New England Car Company, now possesses the exclusive right to use, and apply them for this purpose in the United States. It is the only concern that has tested their value by actual experiment, and in all arguments in favor of them, drawn from experience of their use, are in those cases where they have been furnished by this company. It has furnished every spring in use upon the Boston and Worcester road, and, in fact, it has furnished all the springs ever used in this country, with one or two exceptions, where they have been furnished in violation of the rights of this company; and those using them have been legally proceeded against for their use, *as will invariably be done in every case of such violation.*

The Spring formed by alternate layers of India-rubber discs and metal plates, which Mr. Fuller claims to be his invention, was invented by Mr. Ray in 1844.—In proof of which we give the deposition of Osgood Bradley, of the firm of Bradley & Rice, of Worcester, Mass., car manufacturers, and men of the highest respectability. In this deposition, in relation to the right of parties to use these springs, he says:

"I have known Mr. Ray since 1835. In the last of May or the commencement of June, 1844, he was at my establishment, making draft of car trucks. He staid there until about the first of July, and left and went to New York. Was gone some 8 or 10 days, and returned to Worcester. He then on his retnrn said he had a spring that would put iron and steel springs into the shade. Said he would show it to me in a day or two. He showed it to me some two or three days afterwards. It was a block of wood with a hole in it. In the hole he had three pieces of India-rubber, with iron washers between them, such as are used under the nuts of cars. Those were put on to a spindle running through them, which worked in the hole. The model now exhibited is similar to the one shown him by Ray. After the model had been put into a vice, witness said that he might as well make a spring of putty. Ray then said that he meant to use a different kind of rubber, and referred to the use of *Goodyear's Metallic Rubber*, and that a good spring would grow out of it." There are many other depositions to the same effect.

The history of the invention of these springs, together with these depositions, proving the priority of the invention of Mr. Ray, will be furnished to all interested at their office in New York.

This company is not confined to any particular form in the manufacture of their springs. They have applied them in various ways, and they warrant all they sell.

The above cut represents precisely the manner in which the springs were applied to the cars on the Boston and Worcester road, of which Mr. Hale, President of this road speaks, and to which Mr. Knevitt refers in his advertisement. Mr. Hale immediately corrected his mistake in the article quoted by Mr. Knevitt, as will be seen by the following from his paper of June 8, 1848. He says:

India-rubber Springs for Railroad cars.—"In our paper yesterday, we called attention to what promises to be a very useful invention, consisting of the application of a manufacture of India-rubber to the construction of springs for railroad cars. Our object was to aid in making known to the public, what appeared to us the valuable properties of the invention, as they had been exhibited on trial, on one of the passenger cars of the Boston and Worcester railroad. As to the origin of the invention we had no particular knowledge, but we had been informed that it was the same which had been introduced in England, and which had been subsequently patented in this country; and, we were led to suppose that the manufacturers who have so successfully applied this material, in the case to which we referred had become possessed of the right to use that patent. It will be seen from the following communication, addressed to us by a member of the company, by which the Worcester railroad was supplied with the article upon which our remarks were based, that we were in an error, and that the springs here introduced are an American invention, as well as an American manufacture. How far the English invention may differ from it we have had no opportunity of judging."

AMERICAN RAILROAD JOURNAL.

STEAM NAVIGATION, COMMERCE, MINING, MANUFACTURES.

HENRY V. POOR, Editor.

ESTABLISHED 1831.

PUBLISHED WEEKLY, AT No. 136 NASSAU ST., NEW YORK, AT FIVE DOLLARS PER ANNUM IN ADVANCE.

SECOND QUARTO SERIES, VOL. VI., No. 37.] SATURDAY, SEPTEMBER 14, 1850 [WHOLE No. 752, VOL. XXIII.

ASSISTANT EDITORS,

J. T. HODGE, *For Mining and Metallurgy.*

GEN. CHAS. T. JAMES, *For Manufactures and the Mechanic Arts.*

M. BUTT HEWSON, C. E., *For Civil Engineering.*

PRINCIPAL CONTENTS.

Remington Bridge.....577
Railroad from Lawrenceburg to Indianapolis..578
Memoir of the Physics of the Mississippi.....578
Memorial of the Citizens of Virginia in aid of the Virginia and Tennessee Railroad.....580
Canal Haulage by Steam.....581
Orange and Alexandria Railroad.....581
Attica and Hornelsville Railroad.....582
Alton and Sangamon Railroad.....582
Ohio and Pennsylvania Railroad.....582
Hamilton and Rushville Junction Railroad....582
Cincinnati, Hamilton and Dayton Road.....582
Cincinnati and St. Louis Railroad.....583
Coal Trade.....583
Ogdensburgh Railroad.....583
N. C. Central Railroad.....583
Casting by Centrifugal Force.....583
Influence of Railroad Construction upon the Money Market.....584
Pacific Railroad.....584
Influence of the Steam Engine.....585
Spathic Iron and Steel Ores.....585

American Railroad Journal.

PUBLISHED BY J. H. SCHULTZ & CO., 136 NASSAU ST.

Saturday, September 14, 1850.

For the American Railroad Journal.

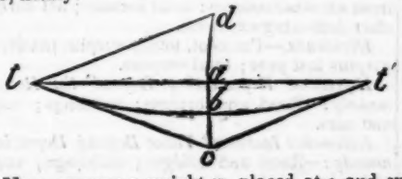
Remington's Bridge.

A good deal has been said and published in the newspapers about the "Remington bridge;" and doubtlessly many have supposed a great improvement, depending on newly discovered principles, to have been effected and brought to light in its construction.

It is obvious enough, however, to those versed in such matters, that nothing new as to principle has been developed—the structure being simply what is technically called a suspension bridge, supported by wooden stringers, instead of iron chains or wire cables which are usually employed in that species of bridge; and further differing from the ordinary suspension bridge, in having the stringers drawn more nearly to a horizontal line, so that the platform or flooring rests upon, and follows the line of the stringers, instead of being suspended below them.

Now, the stringers in this condition are obviously subjected to stress according to the well known laws of statics, and to show approximately what the stress is, it will be sufficiently correct, for the slight curvature here supposed, to regard the curve as a circular or a parabolic arc; and if tangents be drawn from the two extremities of the curve, they will meet as far below the centre of the arc, as that part of the curve is below the chord of the arc;—and a load uniformly distributed over the length of the arc, will produce the same tension upon the stringers (at the ends,) as if the stringer were to follow the line of the tangents, and the whole load, including the weight of the stringer, were concentrated at the point where the tangents meet. Moreover, the amount of stress is to the weight of the load, as the length of either of the tangents is to twice the perpendicular from the intersection of the tangents to the chord of the arc, or four times the perpendicular from the chord to the lowest point in the curve. This can readily be illustrated by a diagram,* and may be reduced to the following for-

* Let t, b, t', be the curve, and $t\,c$, $t'\,c$, the tangents. Join t, t', and draw c, a, perpendicular to t, t', also draw t, d, parallel to $c\,t'$, and meeting c, a, produced in d,—then, $cb=ba$, nearly, and $cd=2ca=4ab$, nearly.



Now, suppose a weight w, placed at c, and sustained by the two lines or chains ct, ct', the points t and t' being in the same level—the tension of these two lines, and the gravity of the weight w, being three forces in equilibrio, are to one another as the three sides of the triangle c, t, d, whose sides are parallel with the directions of the three forces, (see Mechanics) i.e., the stress of ct, and ct', arising from the weight w, is to the said weight w, as the length of ct or ct' is to cd, or $2ca$, or $4ab$, and calling ct, (or tb, which may be regarded as the same, in this approximation and for slight curvature) $\frac{1}{2}l$,—representing ab by d, the stress by s, and the weight by w, the proportion will stand, $s : w :: \frac{1}{2}l : 4d$, whence $4sd=\frac{1}{2}wl$ and $s=\frac{wl}{8d}$.

Now the tension of these tangents is the same as would be the tension of the extremities of the arc tbt', with the same weight w distributed uniformly over the length of said arc.

mula :—$s=\frac{wl}{8d}$, in which s represents the stress, l the length of stringer, d the deflection, or distance of the chord from the lowest point of the curve, and w the load uniformly distributed over the arc, including the weight of the stringer.

Now applying this formula to a stringer in which $d=\frac{1}{50}l$, we have, by substituting this value of d, $s=\frac{wl}{\frac{8}{50}l}=\frac{50w}{8}=6{\cdot}25w$, showing the stress upon the stringer to be six and and a quarter times as great as the distributed load supported by it.

This about the case of Mr. Remington's model in which he says three stringers one inch square sustained 14 tons, or 4⅔ tons to each stringer, which being substituted for w, gives the stress equal to $6{\cdot}25 \times 4\frac{2}{3}$ tons $= 27{\cdot}166$ tons, a stress nearly sufficient to break one square inch of good wrought iron, and enough to break five square inches of good white oak.

The conclusion, then, is irresistible, that my formula is sadly incorrect, or that there must be some mistake as to the fact of Mr. Remington's three stringers of one inch square, sustaining 14 tons with a deflection of only one fiftieth part of their length.

But the formula, though not *strictly* correct, is essentially so for moderate curvatures; and for a deflection equal to one eighth of the length, it probably does not vary more than ten per cent. from the truth, and the less the deflection the nearer correct is the formula in about a duplicate ratio.

It is to be observed, moreover, that the stress is not the same in different parts of the stringer, being greatest at the ends, and least in the centre, the difference being as the length of the two tangents to that of the chord, or, for a deflection of 1 to 8, the difference is about 12 per cent., and a little less than 8 per cent. for a deflection of 1 to 10, which is seldom exceeded in suspension bridges.

Now, those who *can*, may believe that Mr. Remington's stringers are not subject to the established laws of statics, and that, as he enunciates, "a piece of timber may be made to sustain, when in nearly a horizontal position, nearly the same weight as is

necessary to separate its fibres"—meaning, as I take it, with the timber suspended by one end, and the weight hung at the other.

The proposition is only true when the deflection of the stringer is *nearly* equal to ⅛ of its length, and the weight which the stringer will bear is proportionally less, as the deflection is less than ⅛ of the length. With a deflection of 1 to 50 the stringer will bear, as we have seen above, less than *one-sixth* of what it would bear if suspended by one end.

I understand Mr. Remington's 436 ft. bridge in Alabama to be 10 feet wide, and from one to one and a half, say one and a quarter inches thick, and containing 150 square inches of cross section in the centre, with a deflection of ten feet. Now, supposing the pieces so united as to form a solid plank of ten feet wide by 1¼ inches thick, it would, at the most, be capable of sustaining a tension of 12,000 lbs. to the square inch or $150 \times 12000 = 1800000$ lbs. equal to s, in the formula $S = \frac{w\,l}{8\,d}$ and substituting also 436 feet for l, and 10 for d, we have $1800000 \text{ lbs.} = \frac{436\,w}{80}$ whence $w = 330275$ lbs. = the utmost capacity of the bridge, including its own weight.

Now, no prudent engineer would estimate these stringers to bear with safety a stress of over 2000 lbs. to the square inch, even if the splicings were as strong as the sound parts, and in truss bridges generally, the chords, or bottom stringers do not bear a tension of over 500 lbs. to each square inch in the aggregate cross section. But allowing Mr Remington's stringers, on account of their superiority of timber and splicing, to be safe with four times that amount of stress, or 2000 lbs. to the inch, we have in this case, about 55,000 lbs. as the safe load of the bridge, including its own weight.

The planks are understood to be 6 inches thick at the ends of the bridge, (without any apparent good reason for the great difference from the ends to the centre,) and supposing them to average 3 inches over the whole area of 436 by 10 feet gives 1090 cubic feet, which, if of white oak, would weigh some 50 lbs. to the foot, or 54500 lbs.

Thus it will be seen that the stringers may sustain their own weight, and a trifle more, if the splicings are perfect, with tolerable safety, and might *possibly* sustain over 100 tons, without supposing any new principles or new discoveries in mechanics, which the structure manifestly does not develope.

S. WHIPPLE.

Railroad Law of New Hampshire.

AN ACT IN AMENDMENT OF THE LAWS IN RELATION TO RAILROAD CORPORATIONS.

Continued from page 561.

Doings During the Year.—Miles run by passenger trains; miles run by freight trains; miles run by other trains; total miles run; number of passengers carried in the cars; number of passengers carried one mile; number of tons of merchandise carried in the cars; number of tons of merchandise carried one mile; number of passengers carried one mile to and from other roads; number of tons of merchandise carried one mile to and from other roads; rate of speed adopted for express passenger trains, including stops; average rate of speed actually attained by the express passenger trains, including stops and detentions; rate of speed adopted for accommodations trains; rate of speed actually attained by acommodation trains, including stops and detentions; average rate of speed actually attained by special trains, including stops and detentions; average rate of speed adopted for freight trains, including stops and detentions; estimated weight, in tons, of passenger cars (not including passengers) hauled one mile; estimated weight, in tons, of merchandise cars (not including freight) hauled one mile.

Expenditures for Working the Road.—For repairs of road, maintenance of way, exclusive of wooden bridges and renewals of iron; for repairs of wooden bridges; for renewals of iron, including laying down; for wages of switchmen, average per month; for wages of gate keepers, average per month; for wages of signal men, average per month; for wages of watchmen, average per month; for wages of conductors, average per month; for wages of ticket masters, average per month; number of men employed, exclusive of those engaged in construction; for removing ice and snow, (this item to include all labor, tools, repairs, and extra steam power used;) for repairs of fences, gates, houses for signal men, gate keepers, switchmen, tool houses; total for maintenance of way.

Motive Power and Cars.—For repairs of locomotives; for new locomotives to cover depreciation; for repairs of passenger cars; for new passenger cars to cover depreciation; for repairs of merchandise cars; for new merchandise cars to cover depreciation; for repairs of gravel and other cars; total for maintenance of motive power and cars; number of engines; number of passenger cars; number of merchandise cars; number of gravel cars.

Miscellaneous.—For fuel used by engines during the year, namely, wood and coal; for oil used by engines and cars; for waste and other material for cleaning; for salaries, wages, and incidental expenses chargeable to passenger department; for salaries, wages and incidental expenses, chargeable to fireght department; for gratuities and damages; for taxes and insurance; for ferries; for repairs of station buildings, fixtures, furniture; for amount paid other companies in tolls for passengers and freight carried on their roads, specifying each company and the amount to each; for amount paid other companies as rent for use of their roads, specifying each company and the amount to each: for salary of president; for office expenses; for salary of treasurer; office expenses; for salary of superintendent; for office expenses; number of legal counsel retained, and amount paid them; number of actions in court each year in which the corporation is a party, the expense of each action, the nature of the controversy, and the amount in question; all other expenses not included in the foregoing items; total miscellaneous; total expenditure for working the road.

Income During the Year.—For passengers—1. On main road, including branches owned by company. 2. To and from other roads, specifying what, and amount from each. For freight—1. On main road and branches owned by company. 2. To and from other connecting roads, and amount from each; United States mails; rents; interest; from all other sources; total income; net earnings, after deducting expenses.

Dividends.—Per cent, total; surplus not divided; surplus last year; total surplus.

Estimated Depreciation Beyond the Renewals, namely:—Road and bridges; buildings; engines and cars.

Estimated Increased Value Beyond Depreciation, namely:—Road and bridges; buildings; engines and cars.

Number of Free Passengers the Last Year, namely:—Number of directors and officers (except superintendent) of the corporation when not engaged in the immediate management of the cars and care of the road: number of persons connected with and in the employment of other corporations; number of other persons, except stockholders when attending meetings of the corporation.

SEC. 11. If any railroad corporation shall violate any of the provisions of this act, or shall permit any such violation, for which violation no mode of punishment is provided, such corporation shall be liable to an action upon the case in the name of any party injured thereby, to recover his damage, and shall also be liable to indictment and fine not exceeding one thousand dollars for each offence. And if any officer, agent, or servant of any railroad corporation shall knowingly violate any of the provisions of this act, where no other remedy is provided against such officer, agent, or servant, he shall be liable to indictment and fine not exceeding one hundred dollars, according to the nature and aggravation of the offence.

SEC. 12. Each passenger over any railroad shall be entitled to have taken with him by the same train, as part consideration of the fare paid by him, a reasonable amount of personal baggage, exclusive of specie and bills: Provided, that no road shall be required to carry such baggage to an amount valued beyond one hundred dollars without notice being given and extra charges paid for such risk and liability, and such corporation shall be liable for the safe transportation and delivery of all such baggage at the station for which the same was received, or for the payment of the value thereof, if they neglect or refuse to pay for such baggage as aforesaid, on demand, after the expiration of said thirty days.

SEC. 13. Whenever any land may have been or shall be entered upon and taken for the construction of a railroad, any party shall appear entitled to any estate, right, or interest in or charge affecting said land which was not adjusted by purchase or apprasal thereof at the time of the laying out and construction of said road, in such cases said land, on petition to the railroad commissioners, may be laid out and appraised in the same way and manner as is provided for the original laying out and appraisal of land, and if the road is in operation, it shall not be obstructed in the use of said land after written application has been made to the commissioners to lay out the same, and notice thereof has been served on the land holders, until such appraisal shall be made.

SEC. 14. This act shall take effect and be in force from and after the first day of August next.

Indiana.

Railway from Lawrenceburgh to Indianapolis.—We learn from the Lawrenceburgh Register that the engineers are again engaged in locating the line between Shelbyville and Indianapolis, with a fair prospect of a direct and easy line. Efficient men are engaged to obtain additional subscriptions to the stock. The lettings exceed thirty-four miles. The work progresses fairly—the grade on eight miles, except in a few places, is nearly completed. Some of the heavy work, bridging, &c., proceeds well. Offers are made for nearly all the work that is to be let, on terms that are highly favorable to the company, as well as to price as to payments. The first division, it is expected, will be ready for the iron next spring, and the second, with branches to Columbus and to Shelbyville, by the spring following; making the entire length of the line completed nearly ninety miles.

MEMOIR ON THE PHYSICS OF THE MISSISSIPPI RIVER.

By CALEB G. FORSHEY, C. E.

Continued from page 529.

Application of Statistics and Principles.

17. Reasoning *a priori*, the following inductions and conclusions seem unavoidable:

A. The channel of the river is made by the abrasive force of its waters. A greater force would produce a greater channel; and a less force a less channel.

B. The greater the channel, the less the liability to overflow.

C. Concentration of force increases abrasive power, and diffusion of force reduces it.

D. Levees confine and concentrate the waters, concentrate and increase the force, therefore increase the abrasion, therefore the capacity of the channel.

E. Outlets diffuse the water, reduce the abrasive force, and therefore reduce the capacity of the channel.

F. If the channel be already greater than necessary for its servitudes, it would be safe to relieve it of some of its grooving force by outlets.

G. If the channel be too small for its servitudes, it would be wise to increase the channel making power, by closing outlets.

18. The Mississippi discharges a given quantity annually, and this is divided into daily supplies,

with a maximum here, in April and May. It can produce no more.

A. If this supply be discharged with a great velocity, it must maintain a lower level, even if the channel remains unchanged; for there can be no more than the supply to be discharged, and hence the *volume* discharged in a month or year must remain the same.

B. A greater force, with the same volume, implies a greater velocity.

C. Therefore, the levees which confine the waters and concentrate the force, increase the velocity and *depress the level of discharge*.

19. By reference to diagram M and table C, we shall find these inductions, a priori, sustained by the facts.

A. From the year 1817 to 1827, there were no considerable levees about the mouth of Red river.—From 1827 to 1837, levees were being extended the whole length of Concordia coast, say 250 miles.—And from 1837 to 1847, we may regard the system of levees as in full operation, for a long distance above and below the point of observation at Vidalia.

B. During the first ten years, 1817 to 1827, the mean height of the river's surface was, for the first year, 6 inches above the mean height of the following ten years, 1827 to 1837, while levees were being constructed; and 9 inches higher than the mean height of ten years, 1837 to 1847, under the levee system. This relates to the mean annual height, and is reduced to the range of Carrollton.*

C. But the mean high water mark of these decennial periods is in like manner reduced, being 4·4 inches lower, in the second, than the first period, and 6 inches lower in the third period.

D. But we have from the dates of highest water a very unexpected result—namely, the date of highest water is later in the second and third periods than the first.

The mean dates of culmination are for Vidalia, April 26, April 30, and May 15, for the three periods, in their order, and the mean of the 30 years is on May the 7th.

E. The common impression, that levees produce earlier high waters, would appear to be unfounded—and this is the conclusion which it seems to me would be arrived at, from section 18, A, B, C; because the supply cannot be increased or hurried before the rains and thaws of the spring, and our levees can have little effect in hastening the dates of highest water at any point within the influence of levees. The mean dates of culmination as given here, then, only prove to me, that the periods observed are too short to obtain a fair mean, when the range is from March 12th to July 16th.

20. *Cut-offs.*—By application of the principles and reasonings to facts, we shall find—

A. That a cut-off shortens the channel, increases the declivity, accelerates the velocity, strengthens the channel making power, abrades the banks and bottom with more vigor, and ultimately produces a lower mean level than before the cut off.

B. Accordingly, the effect of Shreeve's cut off, at the mouth of Red river, presented in 1844† these phenomena, namely: at the cut off the water was 3 feet, or more lower than the water mark of 1828. Twenty miles above, it was 30 inches lower, 40 miles up, it was 14 inches lower; at Vidalia, 60 miles above, it was 7½ inches lower, and at Water Proof, 90 miles, it was 3 inches lower, and at points above Water Proof it was regarded as equal to 1828.

C. At Morganza, it was 18 inches lower, and at New Orleans and Carrollton full 8 inches lower than in 1828.

These facts were determined by myself at the time, and since, and carefully noted.

D. We may conclude, hence, that the effect was perceptible about 100 miles above, and at least 200 below a cut off, abridging the distance of current 18 miles, and 3·54 feet to the fall of water, thence to the gulf; and that it showed a reduction of high water level both above and below the cut off.

21. The Raccourci cut off has been too recently made, for a full illustration of the effects. Some have already been severely felt. It shortened the distance 28 miles, with a fall at high water of 4·5 feet. The effect in draining the district above it have been realised as anticipated. Its effect at Vidalia was about 4·5 inches, and expired at a distance of about 100 miles. Below it has not had time to produce the new channel due to its acceleration, and has raised the water probably in a slight degree, but not to the mark of 1828 at Bayou Sara, by 2·5 inches. By the best information I can obtain, the difference is about two inches in the bend above Carrollton. By changing points of greatest force, and by increase of that force, it has committed great ravages upon the banks, both above and below the cut off. It will require but two or three years more, judging from past experience, to adapt the new channel to the new channel maker, when the whole will be discharged at a lower level than before the cut off.

22. The matter, as a question of hydrostatics, is settled that a cut off will reduce the level of discharge on both sides; and the question of policy reduced to one of cost from abrasion of banks.—This should be well weighed, before making a cut off, from the suddenness with which a new force is applied. Levees are extended so gradually, that the consequences are slow in being felt, and may be guarded against.

23. *Regimen of Rivers.*—It has recently been advanced by Dr. Riddell, that the river has some normal regimen, and that the effects of a cut off were to continue the carving in the bends of the river, until its channel shall obtain its former length, and regain its normal regimen.

A. I am not aware of any law or laws of currents, whether sediment bearing or clear, which will warrant such doctrine. Inert matter can certainly have no choice of greater or less velocity.

B. The greater the momentum, of course, the greater the power to remove obstacles—and all bends are obstacles.

C. The weaker a fluent, the easier diverted from its course, and hence the tortuousness of streams with little fall.

D. The aggregate tendency of a river, with alluvial banks, of uniform power to resist abrasion, is to straighten its channel.

E. No banks are uniform in this respect, and hence no stream attains or maintains a straight channel. But the power to approximate straightness is increased with the greater declivity, and increased force gained by a cut off.

24. A. *State of Levees and their Servitudes.*—The levees of Louisiana may be regarded as in full operation for 50 years, for about 100 miles from Bayou Lafourche down below the city. These levees have an average height no greater than those now being erected in the upper portion of the State; and the highest water marks known, whether within the levied districts or without, are no higher than many points of the land; and some of the best river plantations present long reaches *without levees.*

B. The river then has not raised its bed, nor reached a point of elevation, in recent years, greater than its level when it deposited those high grounds.

C. To maintain levees in future, then, we shall have to raise them no higher than in the past.

25. A. The location of levees below Baton Rouge was chiefly made before those farther above, and consequently were placed too near the bank to admit of the new abrasions, arising from cut offs, from extended levees, and from the never ceasing steamboat waves.

B. For this reason they are now being destroyed by caving banks and by lashing waves.

C. A period has arrived, when these new elements have cut away the small battures; and the high waters which the geology of this alluvion shows to have been frequent, geologically speaking, in past ages, are recurring, and our levees are wholly unequal to the task of restraining the waters. There are those who are not croakers, that have foreseen these disasters; but their warnings have not been heeded; good levees have not been erected. *The law in this respect has never been enforced.*

26. The management of levees has been in the hands of those least capable of enforcing the law. The districts have been determined by parish boundaries, and not as they should be by the topography of the grounds.

The vigilent have often been inundated, from the negligence of their neighbors.

These considerations, and not any defect in the principle, have caused a distrust in the levee system.

27. *What is the Remedy for Overflows?**—I would suggest to lay off the State into levee districts, indicated by the topography of the grounds, and of each district make sub-districts in like manner, with guard levees running back between them.

Let the districts be large enough to occupy the time, attention and professional labor of a surveyor of levees.

Let there be a chief engineer of levees, whose duty it shall be to survey and define these districts, and to nominate to the governor the district engineers, and to be responsible for their acts, and his own, in heavy bonds.

Let the whole and sole control be placed in his hands, with plenary powers to enforce the law respecting work upon the levees, and to draw from a fund created for that purpose, to have the work performed whenever the planter is delinquent.

Let the levees be erected, in all cases, one arpent from the river, and two or three arpents whenever ascertained to be necessary, by a hydrographic survey of the river. The proprietor having to make such levees in front as may be desirable or necessary to his interest.

28. Let the levee be at least 25 feet wide on the summit, and the public road placed on it, whenever the levee is not more than 5 feet high.

When the levee is higher let the crest be at least 8 feet wide, protected from travel; its base 60 feet, and the public road, on its side at least, 4 ft. above the level of the land, on its river margin, and incline thence 25 feet to the gutter, at the level of the land. Let the road be made of batture sand and it will always be practicable.

With such a levee, located, governed, and constructed as above, with the professional pride of the engineer, and his heavy bonds to quicken and render him vigilant, I have great confidence the country could be maintained free from inundations.

Without a levee system under State government, I have no hope for a remedy for the disasters, now so common and so overwheming.†

Waste Weirs and Debouchures.—Since this memoir was in progress of preparation, a series of questions have been addressed to me by the joint committee on overflows, levees, and drainage, of the legislature.

The principles and views I have expressed answer most of these queries.

And my opinion of the effects of a waste weir at Bonnet Carre, or elsewhere, has been asked; and although my general conclusions are readily inferible from this paper, there are some details worth stating.

The objections are found in articles 17 and 18, as given above, that it would weaken the force of the current, at the bars of the river, and in the channel. All this force is needed; for the bars soon fill up on diverting the waters and weakening the force.

For many years the Northeast pass was the principle channel of commerce, and ships of 15 or 16 feet water passed the bar. Its depth now is about 8 feet, and 11 feet is the greatest depth a vessel can carry over the bar going out. Meantime the Southwest pass has opened, and after several months of high water cutting at the bar, a ship (the Colum-

* The difference of the mean height at Vidalia would be more properly considered. The six inches at Carrollton was about 20 inches at Vidalia, and the 9 inches equal to 30 inches, where the range is 51 feet.

† In all these comparisons I regard the river as having been of the same height, when not locally affected in the years 1823, 1828, 1844, and 1849.

* I treat this part of my subject professionally, and not as a legislator. It is for the legislature to provide ways and means. Let any one calculate how many miles of such levee as I propose could be built with the money lost the past year by inundations.

* A thorough topographic survey of the State, as a part of a general geological and scientific survey, would enable the State to distinguish the bounry between alluvions and upland, and thus to levy a just tax upon lands liable to inundation, for the purposes of leveeing and draining them.

Shall we wait longer for the development of the resources of the State, while others are reaping the rich rewards of the few thousands spent in a scientific survey?

bia) was brought up over the bar, with nineteen feet of water. This is probably the greatest depth ever brought over against the current.

Three or four years since a cut off was made by nature and the oystermen, 25 miles above the Balize, discharging the water into the West Bay. In July, 1849, I measured and found the New Pass, called Wilder's Bayou, 1500 feet wide, and 60 feet deep near the south shore. Since that time the Northeast Pass has been closing with a new rapidity, and promise is given of a new channel to the gulf.

But every new channel closes some previous one, or affects and injures all others.

The objection made by some, that a waste weir at Bonnel Carre would fill the lake, and first flood with water, and next fill up the bed with sediment.

Both these objections I think groundless—first, because a few inches elevation of the water enables it to spread over an outlet several miles wide; and second, because a volume equal to one tenth part of the whole river discharged into the lake would not deposit more than one foot per century.

Nor is there much danger, in my opinion, of a waste weir wearing a channel, even with the 19 feet fall of water from the river to the lake, at Bonnet Carre.

But I am confident that the channel below would soon adapt itself to the diminished force, and there would be little or no reduction of level.

And it is certain that it would accelerate the velocity above, and increase the ravages upon the banks for 20 or 30 miles above.

Let us be careful in future how we tamper with the Mississippi river. He is a tyrant too ungovernable to be trifled with. We know too little of the physics of the river to make experiments at present; and that will be the wisest legislation which directs effort to solve its thousand unknown traits, and meantime relies upon long tried methods more powerfully and strongly applied in the future.

Without any particular theory to maintain or interest to subserve, by the adoption of a particular policy, more than the common interest of a citizen, I submit these views and facts, trusting that they may be of value at the present crisis, but perfectly ready and willing to see them entirely superseded and forgotton, whereinsoever they are not sustained by reason and truth.

To the Honorable, the Senate and House of Representatives, of the United States in Congress.

The undersigned, citizens of the State of Virginia, most respectfully represent, that, being deeply impressed with the vast importance, considered either in a political, commercial, or social aspect that the valley of the Mississippi, below the mouth of the Ohio river, should be connected by a railway, on the shortest and most eligible route, with the Tide Water cities of the Chesapeake Bay and its tributaries, commenced in 1846, to make efforts for the speedy construction of this great national thoroughfare. In 1847, an act of incorporation was granted by the Legislature of this state, to construct a railway from the valley of James river at Lynchburgh, to the state-line in Washington county.—Since that time, a company has been organized, the entire route surveyed, and found, not only practicable, but of easy execution, when it is recollected that the Blue Ridge Mountains and the great Alleghany chain are both passed. Sixty miles of this road are now under contract, and in rapid progress of construction. Stimulated by this movement in Virginia, and being thereby awakened to a proper appreciation of the subject, the Legislature of Tennessee has given its sanction for the continuation of the Virginia line of railroad thro' the entire length of the state, terminating at Memphis. The Legislature of Virginia, in the winter of 1848-9, authorised the construction of a railway from Alexandria to Gordonsville, a point on the Virginia Central railroad in Louisa county. This road is likewise in progress of construction. The distance from Gordonsville to Lynchburgh in 98 miles, and from Alexandria to Washington city 10 miles; thus leaving but one hundred and eight miles of the entire line from the Federal Capital to Memphis, which is not now under legal organization and in progress of construction.

Your memorialists believe, that the enterprise in which they have embarked, will encourage agriculture; promote manufactures and commerce; facilitate a free and general intercourse between the different parts of the United States; tend to the aggrandizement and prosperity of the whole country, and greatly strengthen the bonds which unite the confederacy. They venture, therefore, to solicit your favorable consideration of the prayer of this, their petition.

The construction of a railway from the Federal Capital to the centre of the valley of the Mississippi, is an object of such transcendent importance, that every enlightened citizen and legislator must contemplate is accomplishment with solicitude. To attempt even an enumeration of the benefits to be acquired by the United States from the construction of such a work, would not be admissible in a memorial to Congress. The undersigned must, therefore, rely, and they do with confidence, upon the wisdom of your honorable body, for a just appreciation of the magnitude of the subject they present for reflection and action; contenting themselves with a few general reflections very briefly urged.

If we consider the extent and fertility of the public lands west of the Mississippi, the larger portion of which is yet unsold, the disposition and ability of the people east of that river, (to say nothing of millions who are anxiously awaiting in Europe to enjoy the blessings of free government,) to purchase it; we cannot be insensible to the great pecuniary advantage which must result to the federal treasury from opening to those lands a safe, speedy and economical highway. Every dollar saved to the emigrant from the states east of the "Father of Waters," or from Europe, would operate to enhance the value of the public domain, and it is obvious that a railway from Washington city, through Virginia and Tennessee, would save a large portion of the expenses now incurred in reaching the valley of the Mississippi, below and southwest of the mouth of the Ohio, because it is shorter by more than 100 miles than any other route. Whatever adds to the value of the products of agricultural industry, must increase the value of the land itself. To a country remote from the markets of export, or the places of consumption, it is of the first importance that it should have every possible facility of transportation; because all that is taken from the transit charges, is profit on capital and labor employed in agriculture. This is true also in reference to the imports, and thereby the landholder who has cheap transportation, enjoys a twofold advantage in every increased facility afforded him. Your memorialists confidently believe that the whole country, west of the Mississippi, and south and southwest of the mouth of the Ohio, would enjoy, from the completion of a line of railway from the tide water of the Chesapeake to Memphis, greater advantages than any country so far inland, ever derived from any similar line of intercommunication. These are views confined merely to pecuniary considerations; but your memorialists are indeed more impressed with the political influences which the establishment of this great national thoroughfare will assuredly exert. Nothing is clearer to the minds of your memorialists than that the continuance of our union is essential to the preservation of our liberty as a people; and they believe that now the means of its continuance are only to be found in the strength of our common interests. Can any thing be imagined more conducive to this end than the construction of a railway that shall unite distant sections of country, by offering the facilities of a rapid and profitable intercourse? By the construction of this railway, half of the United States would have more ample means of promoting every social interest, than have heretofore been furnished to the people of any other country—by the accomplishment of any similar enterprise—confidently entertaining these opinions and being unable to perceive any good and valid reason why Congress should not make grants of public lands, to aid in the construction of railroads leading to the unsold public domain, as well as to railways passing *through it*, your memorialists respectfully ask that an appropriation of two millions of acres of public lands, lying west of the Mississippi river, may be granted and vested in the Virginia and Tennessee railroad company; the better to enable that company to construct that part of this great national thoroughfare, between the valley of James river at Lynchburg, and the state line in Washington county.

Your memorialists are aware, that hitherto the Congress of tne United States has not given any of the public lands to aid in the construction of either railways or canals, except where the proposed improvement passed through the lands thus appropriated. To the policy, thus to aid in the more rapid settlement and development of the immense territory held by the United States, your memorialists offer no objections; but on the contrary, would beg leave to express their decided approval. They would at the same time repeat the suggestion made above; that to them it seems difficult to offer arguments to sustain a policy already adopted, viz to make donations of alternate sections of public lands to aid in the construction of lines of intercommunication, passing through those lands, which may not be used with equal force in support of the prayers of this petition.

Shall it be said that the lands west of the Mississippi will be enhanced in value because railways are made to pass through them, thereby cheapening the transportation both of export and import trade, facilitating the intercourse of the people who may reside on the lands, expediting the transit of the mail, affording a certain and rapid line of military communication between distant points of the country in time of war? Will not the construction of railways east of the Mississippi, leading to the very terminus it may be of the lines of railway west of that river, and offering the most direct and least costly line of communication with the Atlantic markets of export and consumption, and places most assailable by European nations, exert the same influences in a much greater degree? Surely they will. Your memorialists repeat, that they are at a loss to conjecture any considerations, that should induce Congress to aid in the construction of lines of intercommunication in the new states where there are unsold lands, that do not apply with fully as much force, to sustain the extension of like aid to similar applications coming from the states in which there is not unsold public domain, unless indeed it be assumed that the new state have a better right to, and can with propriety appropriate the common property of all the states to their exclusive use and benefit.

As Virginians we might urge considerations against such an assumption of right, if attempted to be enforced, with more show of reason and justice, than could be offered by the citizens of other states, but will not urge an appeal to the generosity of Congress, to sustain the prayer of our memorial, whilst we regard it as amply sustained by other considerations, more fitting to govern the deliberation and influence the decision of your honorable body. Your memorialists confidently anticipate the prayer of this, their petition, will be granted, because their fellow citizens in other states have had granted to them, what we ask should be conferred upon the Virginia and Tennessee railroad company. To expect any other decision, would be to doubt the justice and wisdom of the Legislature of the Union.

New Inventions and Discoveries in Photography and the Talbotype.—Sir D. Brewster, in his inaugural address, the other day, to the British Association at Edinburgh, said, I need not inform this meeting that the art of taking protographic negative pictures upon paper was the invention of Mr. Fox Talbot, a distinguished member of this association. The superiority of the Talbotype to the Daguerreotype is well known. In the latter the pictures are reverted, and incapable of being multiplied, while in the Talbotype there is no reversion, and a single negative will supply a thousand copies, so that books may now be illustrated with pictures drawn by the sun. The difficulty of procuring good paper for the negative is so great, that a better material has been eagerly sought for; and M. Niepce, an accomplished officer in the French service, has successfully substituted for paper a film of Albumen, or the white of an egg spread upon glass. This new process has been brought to such perfection that these Talbotypes were universally regarded as the finest that had yet been executed. Another process, in which gelatine is sub-

stituted for albumen, has been invented, and successfully practised. Mr. Edmund Becquerel has succeeded in transferring to a Daguerreotype plate the prismatic spectrum, with all its brilliant color; and also, though in an inferior degree, the colors of the landscape. These colors, however, are very fugacceous; yet, though no method of fixing them has yet been discovered, we cannot doubt that the difficulty will be surmounted, and that we shall yet behold all the colors of the natural world transferred by their own rays to surfaces both of silver and paper. But the most important fact in photography is the singular acceleration of the process discovered by M. Niepce, which enables him to take the picture of a landscape illuminated by diffused light in a single second, or at most in forty seconds. By this process he obtained a picture of the sun on albumen so instantaneously, as to confirm the remarkable discovery previously made by M. Arago, by means of a silver plate, that the rays which proceed from the central parts of the sun's disc have a higher photogenic action than those which issue from its margin.

Canal Navigation by Steam.

A number of scientific gentlemen and others attended yesterday evening to witness the trial of a model canal boat, which was made in the Washington canal, near the Seventh street bridge. The canal boat, of which the one under trial is the model, is called Bond's propeller, and was patented in 1849. The model boat was propelled by steam yesterday across our canal, where it is one hundred feet wide, in forty-three seconds. The boat seemed to move handsomely; causing, however, some ripple at her head. We understand that the trial previously made on the Schuylkill the same model boat was propelled one hundred and five yards in fifty-one seconds. We understand there is a boat now on the Delaware worked by Bond's propeller that is forty feet in length; and another is being built sixty feet in length, which is intended to be run on the Rappahannock canal. The trial of yesterday was witnessed by a number of citizens, and seemed to give general satisfaction.—*National Intelligencer.*

Gold Mining in Canada.

The Quebec Chronicle mentions that a company has been formed, and is now engaged in working the gold mines recently discovered in the seigniory of Vandreuil, in the county Beauce. It says:—

"The yield is continuous, and for the most part regular, the net profits of the company now engaged in extrication being about £5 per day. But in addition to this return from the sifting of the auriferous gravel, there are lucky hits—times when a piece of the precious metal of some considerable size is met with. We have this very day seen a piece weighing over one quarter of a pound, as pure as if it had been taken from the smelting pot—that is to say, unmixed with gravel or vitreous quartz, or any other foreign substance. Were this the only piece of any considerable size that had been found it would signify little; but it is neither the first nor the second, the third nor the fourth. There have been many valuable pieces found, and there seems to be every prospect of finding more."

Steam Haulage on Rivers and Canals.

An experiment has lately been tried. with complete success, on the Gloucester and Berkely Canal, of a somewhat novel steam tug for hauling vessels instead of horse power. It consists of a continuous flexible rail or bar of iron running the whole length of the canal, and made fast at each terminus. Above the deck of the tug are fixed a pair of rollers, between which this flexible iron band is placed, and as they are made to revolve by the steam engine on board. the grip which they take propels the boat. On the trial in question, after hauling various small craft of from 70 to 80 tons burden, she took in tow a Greek brig, laden with corn to the amount of 350 tons, which she towec against a head wind to the dock entrance, at a good walking pace. She hauled the common canal boats at a rate of 6 miles an hour, the speed being but little affected when going against tide. The cost of hauling in the Severn is a heavy item in the transit of goods, and this invention is calculated to diminish the expense 50 per cent., the consumption of coal being only 25 lbs. per hour.—*C. E. & A. Jour.*

Telegraph Between England and France.

The Paris correspondent of the National Intelligencer states that "the wires of the electric telegraph are at last laid across the channel, connecting England with the continent, from Shakspeare's Cliff, one mile S. W. of Dover, to Cape Glnez, about 12 miles S. W. of Calais. The distance is 18 miles but the wires are 23 miles long, to allow for the inequalities of the bottom upon which they lie. The correspondent adds that the first experiments made with the apparatus, long used between New York and Philadelphia, have completely succeeded, and the line will soon be opened to public use; a strictly limited use, however, and of which the inevitable Minister of the Interior holds the reins in his hands."

Oregon Coal.

We have been shown by Mr. Benjamin Reynolds of this city, and have now in our office a specimen of coal taken from a vein recently discovered upon the Columbia river, near the Willamette. We are informed that it exists in great quantities, and is in a situation to be readily got out. The piece we have in our possession is a portion of the upper strata, and consequently cannot be so pure as the lower strata. It has the appearance of cannel coal. The resources of Oregon appear to be developing themselves.

Depths of the European and Open Seas.

In the neighborhood of the continents the seas are often shallow; thus the Baltic sea has depth of only 120 feet between the coasts of Germany and those of Sweden. The Adriatic, between Venice and Trieste, has depth of only 130 feet. Between France and England the greatest depth does not exceed 300 feet, while southwest of Ireland it suddenly sinks to 2000 feet. The seas in the south of Europe are much deeper than the preceding. The western basin of the Mediterranean seems to be very deep. In the narrowest parts of the Straits of Gibraltar it is not more than 1000 feet below the surface. A little further towards the east the depth falls to 3000. On the northwest of Sardinia. bottom has been found at the depth of nearly 5000 feet. With respect to the open seas, their depths are little known. About 250 miles south of Nantucket the lead has been sunk to 7,800. In north latitude. at 76 degrees, Capt. Ross has exceeded 6,000 feet in Baffin's Bay. But the most astounding depths are found in the Southern Atlantic; west of the Cape of Good Hope 16,000 feet have been found. and the plummet has not found bottom at 27,000 feet west of St. Helena. Doctor Young, relying upon the theory of the tides, considered himself justified in assigning about 15,000 to the Atlantic, and about 20,000 to the Pacific.

Baltimore Ship Building.

A Splendid Launch.—The new ocean steamer "Monumental City," was launched on Saturday afternoon about six o'clock from the ship yard of Mr. John A. Robb. She was to have been started at an earlier hour, but, from some cause, she stuck upon the ways and could not be got off for some time. When she did move, however, she glided into her destined element most gracefully; and moved upon its surface like a swan floating gently upon some quiet lake. The "Monumental City" is intended for the Pacific trade; she is owned by Captains Hugg and Norris, G. A. V. Spreckelsen, Esq., Robert Garret & Co., ——— Wilson. of the firm of Wilson. Young & Co., Kirkland, Chase & Co., and Peter Strobel, Esq. She was constructed under the immediate superintendence of Captains Norris and Hugg and Mr. Strobel, the former of whom goes out in her as Captain; and the latter as Agent. She is 185 feet in length, 30 feet beam, 15 feet depth of launch; and from the beauty of construction and durability of materials used, as well as the rapidity with which she was built—being on the stocks but four months, from the time the keel was laid until she was launched—cannot fail to add to the high character already sustained by her builder for ability in his line of business.

After the launch a splendid collation, set out by Mr. James E. Collins, in his very best style, was partaken of by the workmen and a number of invited guests; where all present could not fail to have enjoyed themselves, and more especially those who had borne the "burden of the day."

The Mineralogy of Louisiana.

The Harrisonburgh Advocate gives an account of the minerals collected by Dr. James Holliday of that town. It was from this immediate vicinity that the Monument block was quarried. We inspected this cabinet several years ago, and it contains many beautiful mineral and geological specimens. Its greatest interest, however, is derived from the fact that they are all collected from one locality—Agates, Cornelians, Amethysts, and others of the quartz family, and with those are found the Eucronites, Madrepores and other petrifactions. None of them are found in *situ*, but are diminutive boulders. They are in fact strangers, though their migration is beyond the range of human computation.

They are found on the high grounds on both sides of the Mississippi river, but not a pebble as large as a pea can be had for love or money in the alluvial lands. Natchez, under the hill, and the high bluffs on the Ouachita, in the town of Harrisonburgh, are the richest localities, but they are properly scattered over the pine woods as far west as the Sabine. They all bear marks of attrition, and are rounded like stones on the sea shore; they are found in the drift, which was brought down from the mountains, when this great valley was covered with water, and a strong current poured down into the gulf, but with these rocks of the oldest age, which were created prior to any organic formation, are found the lilies and other remains of the early flora, hardened into stone; and the oldest shells, the first evidence of organic life. What train of far extending speculation is called forth by these discoveries.—*N. O. Crescent.*

Flax Made to Resemble Cotton.

However much the following method may now admit of simplification, it is very interesting to see how much cotton was esteemed formerly in relative value, and how much skill and capital have had to do with its present general developement.—In the *Sedish Translations*, for the year 1747, a method is given of preparing flax in such a manner as to resemble cotton in whiteness and softness, as well as in coherence. For this purpose a little sea water is to be put into an iron pot or untinned copper kettle, and a mixture of equal parts of birch ashes and quick lime strewed upon it; a small bundle of flax is to be opened upon the surface, and covered with more of the mixture, and the stratification continued till the vessel is sufficiently filled. The whole is then to be boiled with sea water for ten hours, fresh quantities of water being occasionally supplied in proportion to the evaporation, that the matter may never become dry. The boiled flax is to be immediately washed in the sea by a little at a time, in a basket, with a smooth stick, at first while hot; and when grown cold enough to be borne by the hands, it must be well rubbed, washed with soap, laid to bleach, and turned and watered every day. Repetitions of the washing with soap expedite the bleaching; after which the flax is to be be beat, and again well washed; when dry, it is be worked and carded in the same manner as common cotton, and pressed between two boards for 48 hours. It is now fully prepared and fit for use. It loses by this process nearly one-half its weight, which is abundantly compensated by the improvement made in its quality.

Virginia.

A meeting was recently held in Alexandria to take into consideration the subject of internal improvements in this State. It was addressed by W. M. Burwell, Esq., of Bedford, a well known advocate of railroads, from whose address we make the following extract, showing the distance between Washington and Memphis by the new line of railroad which Virginia in conjunbtion with other States, is now endeavoring to construct:

Mr. Burwell stated that the distance from Memphis to Chattanooga is 310 miles. It is well known that a company is organised to construct this road and has now a cash subscription of $1,500,-

000. From Chattanooga to Knoxville the distance is 110 miles. The road is in an advanced state.—A company has also been organized and $675,000 subscribed to build a railroad from Knoxville to the Virginia line, a distance of 120 miles; that the route has been surveyed, and 44 miles of it put under contract. A company has been organized to build a railroad from Lynchburg to the Tennessee line, a distance of 215 miles, and $760,000 subscribed by individuals, and $900,000 by the State, with an obligation on the part of the state to subscribe *pari passu* to an amount sufficient to complete the whole work; 60 miles of this road has been put under contract, and English iron bought at about $42 per ton to lay the track—80 miles more it is expected will be put under contract in October.—The resources of the country, with the aid of the state, it is believed, are fully adequate to the completion of the whole work within a short time.

From Lynchburg to Charlottesville is about 65 miles. No company has as yet been incorporated to construct a railroad between these two points.—From Charlottesville to Gordonsville, a distance of 20 miles, there is now a railroad connection in full operation.

A company has been organized to build a railroad from Gordonsville to Alexandria, a distance of about 89 miles and 60 miles of it is now under contract to be finished by the 1st of January, 1852.

From Alexandria to Washington in 8 miles.—The whole distance from Memphis via Lynchburg to Washington is 932 miles. Upon this whole line no tunnelling will be necessary and the grades will be moderate. From Memphis to New Orleans by the river is 802 miles.

Between Chattanooga and Charleston, S. C., a distance of 430 miles, there is now a railroad in full operation. A company has been organized with a state subscription to construct a railroad from Lynchburg to City Point on James river, a distance of 110 miles. City Point is 10 miles from Petersburg. A part of this road is being built.

From Richmond, via the Danville road, to Lynchburg, is about 137 miles. A company has been organized to build a railroad between these two points and 90 miles is now under contract. From Norfolk to Lynchburg via the Weldon road, is about 180 miles. An act has been passed incorporating a company, without any aid of the state, to construct a railroad between these two points, and it is expected the road will be built at no very distant day. From Lynchburgh to Washington via Gordonsville is about 180 miles; via Richmond and Fredericksburg about 270 miles.

Massachusetts.

Essex Railroad.—The county commissioners met at the Court House in this city on Monday last, according te adjournment, upon the petition of the Eastern vs. the Essex railroad company, when the latter company having failed to appear, and not having given the security ordered by the commissioners, as required by statute, for the payment of all such damages and costs as shall be awarded by said commissioners, or by a jury, for land or other property taken, record of the proceedings thus far was made, and petition, as to all other matters and things, was continued for further advisement.

We understand that notice has been given by the Eastern to the Essex company no longer to pass over the premises belonging to the former at the Northey's Point crossing, under that part of the statute which provides that all the right or authority of the company declining to give such security to enter upon or use the land or other property of the other party, except for making surveys, shall be suspended until they shall give such security. There are other orders for security which are also unanswered as yet by the Essex railroad company, and matters would seem to have arrived at that crisis when the real friends of the company should make a vigorous effort to relieve it of its embarrassments, if the thing can reasonably be done.—*Salem Register.*

New York.

Attica and Hornellsville Railroad.—A meeting of the friends of this road was held in Buffalo recently. There were delegates from the several counties through which it is designed to pass. The Buffalo Courier says:

"We learn from these gentlemen that the bona fide subscriptions obtained on the line of the road are as follows:

Attica	$100,000
Middlebury	25,000
Warsaw	34,000
Gainesville	25,000
Castile	45,000
Genesee Falls	21,000
Portage	15,000
Nunda	50,000
	$315,000

The actual subscription exceeds this amount.—In addition to this, from $75,000 to $100,000 is guaranteed to be subscribed on the line, without including the subscription at Hornellsville, which will be $25,000.

The company have, in short, what is equivalent to a subscription of $450,000.

Several contractors have offered to build large portions of the road and take from 25 to 50 per cent. in stock. One contractor offers to build 30 miles on these terms. Another offers to build 10 miles, and take 50 per cent. in stock."

Illinois.

Alton and Sangamon Railroad.—The Alton Telegraph says: "We are gratified to be able to state that active operations on the Alton and Sangamon railroad commended on Monday. A large number of men are now employed; and so soon as the necessary additional implements can be procured—which will be in a few days—the full force will be put on. All the iron, spikes, ties, etc., required for the whole route, have been purchased; and the early completion of this great work may be confidently anticipated. Stockholders should now come forward promptly, and pay the instalments regularly as they fall due.

We understand that Mr. Joseph Gilmore, formerly of Dayton, Ohio, but for nearly one year past a resident of this city, has obtained the contract for the first four miles from the terminus on Seventh street to the Coal branch. This embraces all the heavy cutting, and is by far the heaviest job on the whole route. The long experience and acknowledged energy of Mr. G. are a sufficient guarantee that his part of the work will be well done, and completed in good time; and we hope he will obtain an ample remuneration for his labor and enterprise."

Ohio and Pennsylvania Railroad.

More than two thousand men and horses are now employed upon the Ohio and Pennsylvania railroad, and the work done in the month of August amounted to nearly $50,000.

This is a large force for a line on which the work is generally light, and it shows the rapidity with which it is advancing towards completion.

Some additional subscriptions to the stock will be needed to enable the company to complete the road to Massillon without incurring a floating debt. About one hundred and twenty thousand dollars of new subscriptions will be required for this purpose—and, when we consider the importance of the work to Pittsburg, its value to the stockholders, and the short time in which it can be brought into profitable use, we see the strongest reasons why the amount required should be readily raised. The contractors are doing the work at cash prices, and the directors should be kept in funds to carry out this wholesome system to the end.—*Pittsburgh Gazette.*

Western Railroad Credits.

The Michigan Central railroad has been the pioneer in establishing Western railroad credits at the East. The success of this road has opened the eyes of eastern capitalists, and they now acknowledge that they never dreamed of the resources of the great west, as has been illustrated by the business of the railroads now in operation.

Western railroad securities are now negotiated with as much ease as in the eastern. Within the past year, the Indiana roads have raised over a million of dollars by loans, and within the past month the Central has obtained an additional loan of $1,000,000—the Milwaukee and Mississippi railroad $250,000, and the Chicago and Galena road $400,000. In addition to these loans, $5,000,000 of railway stock has been taken for enterprises of the west.—*Detroit Tribune.*

Indiana.

Hamilton and Rushville Junction Railroad.—In our last paper we noticed that Caleb B. Smith, Esq., had been appointed the President of this road and that there was a prospect of a speedy commencemencement. A writer in the Cincinnati papers, urging the claims of this road, says:

"Your connection with St. Louis should be made by a road passing through the centre of Indiana.—This you can effect very soon and at a small expense. Your road to Hamilton will soon be completed, a road from that point via Oxford, Connersville and Rushville to Indianapolis, takes you to the centre of the state. In two weeks from this date [Aug. 17,] cars will run from Rushville to Indianapolis. The only link then wanting in the chain is from Rushville to Hamilton. To supply this link we have a charter to make the Junction railroad, and the right of way has been given to our country by the Ohio Legislature. The route has been recently surveyed by Mr. Moore, one of the best engineers in the west, and is found to be very favorable. A first class road with a T rail, 60 lbs. to the yard, can be made for about $15,000 per mile, making the aggregate cost a fraction over $800,000. Our people are ready to take hold of the work and put half of it under contract this fall if we can get a reasonable amount of assistance from your city. If this road shall be made, cars will run direct from Cincinnati to Indianapolis. Roads are now in progress from Terre Haute, Lafayette and Peru, three prominent points on the Wabash river, to Indianapolis, and all of them will be completed in two years. If the Junction railroad shall be made, the whole trade which will be brought to Indianapolis on these three roads will be carried direct to Cincinnati. Your city will thus drain the trade of the whole centre of the State and that of the Wabash valley. But in addition to this, the road from St. Louis, eastward, will be made to Terre Haute, crossing the Wabash at that point, and you will then have a direct railroad communication with St. Louis. All these advantages will be secured to your city by the construction of the Junction road, and surely no road has been projected by which it can secure such immense advantages at so small a cost."

Ohio.

Cincinnati, Hamilton and Dayton Railroad.—The Hamilton Intelligencer says that the work on this road is progressing rapidly. On Monday two boat loads of T iron arrived here, designed for the portion of the road between Cincinnati and this place. The company is at this time engaged in securing the right of way between this place and Dayton, and we learn that it is the intention of the contractors to commence operations in a few days on that part. The manner in which the work is pushed forward by the company is certainly very creditable.

Maryland.

Railroad Election.—At an election for President and directors of the Wrightsville, York and Gettysburg railroad company, held on Tuesday at the office of the company in York, the following gentlemen were elected:

President—Robert M. Magraw.

Directors—John Herr, J. F. Cockey, T. Stevens, W. F. Walters, W. Thompson, Henry Welsh, A. Her Smith, David G. Barnitz.

Description of a Powerful Magnet.

Mr. Faraday produced (at a meeting of the Royal Institution) a magnet of remarkable power, to which he invited attention. This magnet was made by Mr. Elias, of Harlaem, and presented to Mr. Faraday by Mr. Logeman, of that city. It weighs 0-98 lb., and lifts 26 lbs., and its power is not diminished on the keeper being forced abruptly from the poles, even though this be done many times in succession. Mr. Faraday reminded the meeting of Haecker's formula, which fixes the greatest sustaining power of the best artificial steel magnets at 10·33 N 2-3 [N being the weight of the magnet]; and he stated that this magnet has twice the power expressed by that formula, and that even when a disk of letter paper is interposed between the poles and the keeper, it will sustain the weight indicated by this formula.

Mr. Faraday mentioned that the small horse shoe magnet belonging to the Royal Institution weighs 7 lbs. 14¼ oz., and lifts from 40 41 lbs. (*i. e.*, nearly 10-33 N 2-3. He concluded by noticing that this magnet of Mr. Elias would support its own weight at a single pole; and in this property it resembles the cylindrical bar magnets now made in the electro-magnetic helix, and used in the magnetical observatories. He suggested that this horse shoe magnet of Mr Elias might probably be charged by a similar process. These magnets are manufactured in Haarlem at a cheap rate, even when possessing great power.—*Lomdon Athenium.*

Ohio.

Cincinnati and St. Louis Railroad.—The Cincinnati Gazette of Wednesday last says:—"The City Council at their meeting on Monday night, adopted a preamble and resolutions for submitting to a vote of the electors, the question, whether the city shall lend to the Ohio and Mississippi railroad company $800,000 in 6 per cent bonds, to be expended in the construction of the road from this city west. The loan to be made when $200,000 or upwards of stock shall have been subscribed by good and solvent subscribers, nor until a board of directors, a majority of whom shall be citizens of Hamilton county, shall be elected.

"This important question is now to be submitted to the people of the city, and there can be little doubt, but that they will direct the loan to be made."

The Coal Trade.

We give below a brief glance at the rapid increase of production and present magnitude of the anthracite coal trade, which may serve to refresh the memory of the reader:

The trade commenced with 365 tons in the year 1820; that the production reached 48,047 tons in 1827; that it had increased to 881,026 tons in 1837, and advanced to three millions of tons in 1847; without including much that is consumed on the spot, in the mining districts, or in the interior of the country.

The increased production, therefore, was, in the first ten years, viz: from 1827 to 1837, 1735 per cent.; in the second ten years, viz: from 1837 to 1847, 240 per cent.; and in the twenty years previous to 1848, that is, from 1827 to 1847, 6150 per cent.

Another view of this subject exhibits this accelerated increase in the consumption of anthracite, perhaps, with yet greater perspicuity. The am't, which was periodically forwarded to market, exclusive of the consumption in and near the places of production, and which has not been estimated, is as follows:

Aggregate in the 21 years from 1820 to 1840, inclusive.....	6,847,172 tons.
In the succeeding 7 years to '47, inclusive.....	12,381,961 tons.
Total from commencement....	19,219,133 tons.

Georgia.

Muscogee Railcoad.—The board of directors at a meeting last week, passed an order for the purchase of locomotives for this road. The contractors are making good progress in grading and getting timbers for the superstructure. It is expected that by the month of April, 30 miles of the road out of this city, will be ready for the cars. The sections beyond the Flint river are now in process of location, and a large force will be put on them in November. We can thus see the end of this enterprise, and count safely upon a steam carriage from Columbus to Macon, in a little over twelve months.—*Columbus Times.*

Virginia.

Orange and Alexandria Railroad.—We learn that the board of directors of this railroad company at their recent meeting, adopted the location of the road through Prince William and Fauquier counties, on what is called the *upper line.*

This line passes about two miles and three quarters to the right of Brentsville, and within seven-eighths of a mile of Milford.

We learn also that the location of the road is now completed from Alexandria to Gordonsville, and that the total distance is rather less than 89 miles.

The board have directed the energetic prosecution of the graduation from Bull Run to Culpeper Court House, which has been hitherto kept back until the question of routes was decided.

We wish we were able to make a similar announcement for the Western section, and take the liberty to urge upon the friends of the work there, the propriety of forwarding an enterprise so important to their interests. A strong effort now might effect its commencement this fall, and certainly secure its completion in the year 1852.

There was a meeting of the stockholders of this company, held in this place, yesterday, at the Lyceum Hall, B. E. Harrison in the chair, and J. H. Reid, secretary. The meeting was called for the special purpose of considering the application for the branch of the road to Warrenton. The decision of the stockholders, we understand, was *adverse* to the application.—*Alexandria Gazette.*

New York.

Ogdensburgh Railroad.—This railroad is to be opened for business through its whole line on the first of October next. An active competition will then spring up between the railroads running towards Boston, and the canal boats running to New York for the carriage of such freight as the above road may bring to the shores of Lake Champlain. We are anxious to see how this will terminate.—Our belief now is that merchandise can be transported from Rouse's Point to New York by lake and canal navigation for about one-half of what it will cost to send it by railroad to Boston. The above road will do a large local business we have no doubt. The amount of its through business is more problematical. As far as its influence is concerned it will be decidedly in favor of this city, as Rouse's Point is and must always be nearer New York *commercially* than Boston. We wish the road all success. It is a very important one for the inhabitants of the northern part of this State. It has great obstacles to contend with, and we are heartily glad to see it so near its completion.

North Carolina.

The North Carolina Central Railroad "is to commence on New river, near Waynesboro', in Wayne county, where the Wilmington railroad crosses it. Thence, via Raleigh, keeping near Greensboro', through Lexington to Charlotte, in Mecklenburg county, a distance of about 220 miles." The capital stock of the company is $3,000,000; one third being subscribed by individuals, and the balance by the State. At Charlotte the road will connect with the Charlotte and South Carolina railroad, which is to connect with the South Carolina railroad at Columbia, and will soon be completed.—On the north it will probably be connected with the Richmond and Danville railroad, and form a part of a very direct line between the north and south. We understand that the above road will be ready for contract about the first of January next.

Casting by Centrifugal Motion.

We have frequently spoken of this new mode of casting, invented by Mr. Thos. J. Lovegrove, of Baltimore. The process is very simple, consisting merely of pouring the melted iron into a cylinder, which is made to revolve with great rapidity, and by this motion the iron is equally distributed over its whole inside surface. The form of the casting may be varied at pleasure, by changing the form of the cylinder.

The pipes cast in this way are much stronger than those cast by the old process. The specific gravity of the iron is much greater. Every revolution of the cylinder adds one grain or layer to the pipe, which effectually prevents all air holes, and gives an uniform thickness to every part of it.—From the simplicity of the operation, we should judge that casting by this mode would be cheaper than by the old process. We have no doubt of its superiority in all other respects.

We learn that an incorporated company has been formed in Baltimore under the title of the *Centrifugal Company*, for the purpose of bringing this invention into use, and that the stock to the same is now being subscribed. We are glad to see that Mr. Lovegrove is like to meet with the reward which his ingenuity so richly merits.

To Iron Manufacturers.

The attention of those engaged in the manufacture of iron in the north and east, and who find it difficult to sustain themselves against both foreign and domestic competition, under the disadvantages of their position, is invited to the advertisement of the Alabama and Tennessee railroad, for proposals to furnish that road with iron manufactured in the former State. The amount wanted is sufficient to give a rolling mill a good start, and in Alabama, if in any State in the Union, the manufacture of iron can be carried on successfully. Here coal and iron ore of the best quality lie side by side, and works in the interior of this State would enjoy a strong protection in the cost of transportation, in addition to the revenue duty. After the railroad shall be supplied, the ordinary wants of the country will require a very large amount of pig and bar iron. But the railroad which is now in progress will be the parent stem of many other branches; so that the demand for these works would in all pro-

bability increase instead of diminish. On the whole, we do not know of a finer unoccupied field. Alabama is admitted to be one of the finest States in the Union, and her public works, which are now in progress, are destined to make her one of the most active and flourishing. Will not some of the northern manufacturers examine into this matter?

AMERICAN RAILROAD JOURNAL.

Saturday, September 14, 1850.

Influence of Railroad Construction upon the Money Market.

One of the most marked characteristics of this age, is the rapid and constant investment of accumulated capital. The discovery and application of natural forces, such as steam and electricity to the arts of life, and the vast addition which they have made to our means of production and enjoyment, making available sources of wealth, which, without such aids, would have been entirely beyond our grasp, have given an importance to capital, (understood as accumulated products) such as was never felt in any former age. In former times, when there was but little variety to labor: when, from age to age, the same routine of industry was followed, when from the want of suitable means of transportation, the most useful of products possessed no *commercial* value, the little capital that was accumulated, was hoarded, either from inability to use it, or for the purpose of securing it from the exactions of government, or from the brigand or the outlaw. But progress has brought with it security, and has opened to us channels by which accumulated capital may instantly become the means of further production; and the man who possesses most of this, wields by virtue of it a paramount influence in society. Formerly the land holder was king or noble. Now the monied man, who may not own a foot of land, has taken the place of these, in controlling the conduct of his fellow men. The former have been dethroned, and the latter installed in their place.

But to the point. How far will the rapid progress of our works of internal improvement interfere injuriously with the ordinary business operations of the country, which, to be conducted with ease, requires that a large amount of accumulated property shall remain uninvested? If, as a community, we embarrass ourselves, we defeat the objects we have in view. We must pause till we have extricated ourselves before we can again start with success.

The value of a railroad as a reproductive agent, depends of course upon the character of the country, and the pursuits of the people, through which it runs. This is the reason why railroads in this country are so much more useful and successful than in England. At the present time our great interest and pursuit is agriculture. These are of a bulky character, compared with their value, and from the want of interior markets must be transported to the seaboard, either for consumption at home or abroad. For the want of domestic markets, the value of produce depends upon the cost of transportation. In many parts of the country these are greater than the cost of culture; consequently many portions of the country remain either unsettled, or produce only what is consumed on the spot.

Our capacity for production in this country is unlimited. The great drawback to it, as we stated before, is the cost of conveyance to the seaboard. Now any contrivance that diminishes this cost adds in the same proportion to the property of the country. All public works are an illustration of this. Perhaps no one more strikingly so than the Indiana canal. Before this was opened, the price of corn on the Wabash was from 15 to 20 cents per bushel. It is now worth from 35 to 40 cents. The amount received yearly from this increased price is the yearly addition to the property of the State, arising from the sale of corn alone. Take the New York canal. The people of the United States could better build it every year from the saving they make by it in transportation—than do without it. The above serve merely as illustrations of the influence of all works of a similar kind.

It England every farmer enjoys a market at his own door. With the farmer there, the railroad is not equivalent to a market. At best, it only gives him a choice of markets. Most of the manufacturing towns, too, are near the sea shore, so that her manufactured fabrics require to be transported but a short distance. Railroads there are useful, but by no means to the same extent as in the U. States. The great masses have but little interest in their construction or success. Because railroads have not been successful there is no reason why they should not be here. The condition of things is entirely different, consequently that country furnishes no guide for this.

The only part of this country where the injurious effects of a too rapid construction of these works has been seriously felt, are the New England States. Here too many competing lines have been built, and too many have been pushed into unproductive parts of the country which had but little surplus to send to a market. But the fault here is in the expense of the roads, rather than the income. This nearly always exceeds the estimate, but by no means in the same ratio as expenses. These are owing partly to the rugged nature of the country, partly to bad management, and partly from the fact that most of them terminate in Boston and other large towns, involving vast expenses for suitable accommodations, in the shape of real estate, etc. If they had cost only one half the present sum, which is more than double the average cost of railroads in other parts of the Union, they would have been highly productive, and the influence of their success upon the money market, and upon public sentiment, would have completely prevented the result which we now witness. If in other parts of the U. States, railroads can be built for one third the cost of the New England railroads, then the want of success of the latter is no argument against the former, where the country is better adapted to their construction, and furnishes a greater business for their support.

Now we believe it may be demonstrated, that every railroad built in the west—we mean by this not such as might be built, but those that will be constructed for some years to come—instead of exhausting, will add so immediately to the means of the country, that the drain created by them will not be felt: that every such railroad will soon become so much additional means in the hands of those who construct them, for further progress and improvement. There is hardly a road constructed or in progress in the western country, where this is not, and will not prove, true. From the amount transported, the sum saved soon equals their cost. When this point is reached, the cost of construction ceases to be felt as a burden. It must be borne in mind, too, that every railroad is but the precurser of innumerable ordinary and plank roads, which all act as feeders to the main trunk line; which, like the channel of a mighty river, bears on its bosom the floods collected from a thousand tributaries.

We do not see any reason, therefore, to fear from the construction of railroads, in the west particularly. If they must be built with money from the east, this will soon be returned in the increased value of western produce sent back in exchange. If we cannot export our breadstuffs to the extent to be desired, the receipt of gold from the new State of California will prevent any pressure in the money market, which might have proved disastrous but for this new resource.

On the whole, we see no danger in the encouragement of these works; neither do we believe that anything is to be feared from their construction, to the extent to which they will be carried for some years to come at least.

Missouri.

Pacific Railway.

The St. Louis papers give an interesting account of a recent tour of Mr. Allen, President of the road, through the State on behalf of this work. He was every where welcomed in the most enthusiastic manner, and received assurances of a large subscription along the line of the road. Nearly all the counties through which it will run will subscribe largely, and individual subscriptions will be fully up to the ability of the people.

We learn that the engineer has completed the survey of one route from Jefferson City to the western boundary line of the State, in Cass county.—He is now engaged in running another line, commencing at or near the mouth of the Kansas river.

The entire surveyed route from St. Louis to the western State line, proves to be about 265 miles in length. There will be three routes surveyed from St. Louis to Jefferson City; five or six in the neighborhood of Jefferson City, and not less than two on the remainder of the route westward.

The friends of this road are very much encouraged by the favorable aspect of affairs. The route is much shorter than was anticipated, is of easy construction, and the whole population interested in the road are prepared to subscribe to its stock to the full extent of their means. With a large city like St. Louis, vitally interested in this work, and abundantly able to build it herself without aid from other sources, we certainly expect to witness the most rapid progress of this road.

We have occasion to know that the engineer of the road, who has the reputation at the east of being a man of cool, dispassionate judgment, is very favorably impressed with the importance of this line, with the resources of the country it is to traverse, and with the ability of the people of Missouri to build it, much more so than when he left New York. His opinion in these matters, will have great weight in this market, should the company ever come here for money, which very probable it may do.

Connecticut.

The New London, Willimantic and Palmer railroad has been completed to its junction with the Western railroad at Palmer, Mass.

Maine.

The Kennebec and Portand railroad is now completed from North Yarmouth to Portland.

Augusta, Hallowell and Gardiner have voted in favor of loaning their corporate credits to this road. These will place the company in funds, and there is now no doubt of the speedy completion of this work to Augusta.

The Steam Engine.

The present census of the United States when completed will show a very marked increase of the Northern States over the Southern. This disparity will be as great in the old as the new States. In Massachusetts the increase will be twice as great as in Virginia, or compared with the area of the two, nearly twenty times as great. The increase of Rhode Island with an area of 1200 square miles will probably be as great as North Carolina with 50,000.

The increase in the olden Northern States has not been in the agricultural towns. These have only gained where their growth has been stimulated by the manufacturing or commercial towns in their vicinity. The increase of population of the farming towns finds it for its advantage to emigrate west, where land is cheap, rather than pay the price asked at home. The gain is found as we said above in the manufacturing and commercial towns. The latter have grown from the additional business brought to them by the new facilities for transportation which have been opened, which enables the farmer to increase the amount of his products by diminishing the expense of sending them to market. The manufacturing towns owe the greater part of the rapid growth to the application of the steam engine to the manufacturing purposes. The south has not yet availed herself of this agency to any considerable extent. Hence the difference.

In the direction and application of her industry the south as far as great pursuits are concerned has derived but little advantage from the use of steam. Her whole work is still carried on by *muscular* power. Now the wealth of a people can be measured very exactly by the extent to which *natural* forces supersede muscular action. There is a limit to the efforts of the latter, but there is no limit to the extent of steam power. The steam power of England represents the labor of 300,000,000 men. Compared with a people who make no use of this power, she is as much stronger as if this power was actually represented by this number of living beings. Compare England or the United States with Spain. The power of these countries bear no ratio to their number of people, but to the extent to which natural power or agents are made use of by each. England is fifty times more powerful than Spain, because her steam power represents fifty times more men than Spain possesses.

So long as one country can monopolise the use of natural agents her gains are measured by the amount saved by their use, because she puts this difference into her own pocket. This is true to a less extent so long as by the negligence, indolence, or want of skill of other communities, she enjoys this monopoly. The immense wealth of England is owing to this fact. For a long time she monopolised, for manufacturing purposes, the steam engine. She could thus manufacture at one-quarter the former cost and sell at the old rates. All the world becomes tributary to the people who can manufacture cheapest.

Dr. C. T. Jackson.

Our readers will find in another column an advertisement of this distinguished Geologist, offering his services to the public in the line of his profession. Dr. Jackson enjoys a well established and widely known reputation as a skilful and experienced Geologist, and those having mines to explore or assaying to be done, cannot commit them to more experienced hands.

European and North American Railway.

Mr. A. C. Morton, Chief Engineer of the Atlantic and St. Lawrence railroad, is soon to commence the survey of that portion of the line through the State of Maine. The people in the Provinces appear to be fully aroused to the importance of this great work to them, and are coming forward most liberally with their subscriptions. We see no reason to doubt but that they will build their part of the line. They certainly will, if there is money and credit enough in the Provinces to do it.

New York.

Troy and Greenfield Railroad.—The directors of the Troy and Greenfield railroad company have been authorised, by the stockholders, to receive proposals for the construction of their railroad from North Adams to the State-line of New York; and if the report is favorable, it is stated that that portion of the road will probably be put under contract.

Spathic Iron and Steel Ores at Roxbury and New Milford, Ct.

The existence of this ore has long been known, but it has attracted but little attention for many years past, owing probably to the supposed difficulty of working the mines. Attention has recently been attracted to it, and it is found to be very accessible and easily worked. The excellent quality of the iron made from this ore gives it a very high value, and causes it to be sought for by those engaged in the manufacture of the best kinds of cutlery, and in machinery where great strength elasticity are required. We believe that this variety of ore is not worked in any part of the United States, nor in any part of the world, except in Germany, where it forms the basis of the celebrated "German steel." We understand that arrangements are making to work this ore on a large scale, for the purpose of converting it into steel; and it is believed that as good an article can be made from it as the best imported.

This locality was formerly worked for silver, which is associated with the ore. From a record of ancient workings, it appears that a large amount of silver was obtained. The mine was abandoned in consequence of the difficulty, under the old system of mining, of keeping it free from water. The old shaft has recently been cleared out, and proves to be 125 feet deep. The vein is about 10 feet wide, with a lode of pure ore about 4½ feet, which increases as it descends. The base of the hill, in which the mine is located, is 470 feet below the top of the shaft. The outcrop at the base is about 2 feet wide and about half a mile from the shaft.—We learn that one furnace is already in blast, and that others are in progress.

Columbia Silver and Lead Mining Co.

The above is a title of a company which has recently commenced operations at a locality in the towns North East and Ancram in Columbia county in this State. We were shown a few days since several tons of this ore, at the smelting establishment of M. Solomon & Co. in this city, which was very rich in metal, and we understand that analysis has proved it to contain about 75 per cent to the ton of ore. We learn that there is every appearance of an abundance of ore, and the specimens analysed prove it to be rich in silver. A large quantity is now raised to the surface, and works are to be immediately erected to reduce it the metal.

The locality was worked during the war of the Revolution, but abandoned soon after. The lead obtained from it went to supply the army. The whole range of the Green Mountains is known to be rich in minerals, and we think that there is reason to believe that the above mine will turn out to be a valuable one. We wish the company abundant success.

To Contractors.

The attention of contractors is invited to the advertisement of lettings by the Alabama and Tennessee railroad, in another column. This road, which will be vigorously pushed, is worthy of attention, not only for the present, but prospective work to be let. A portion of our northern contractors could not do better than to locate themselves in the south and west, as the great number of railroads which will soon be in progress will give them plenty of work.

Tredegar Iron Works.

ROLLING MILL FOUNDRY AND MACHINE SHOPS. The undersigned continues to manufacture at his Works in this city (from best charcoal metal) Bar Iron of every description, embracing—Rounds and Squares, from 1¼ to 5 inches diameter. Flats, from ¾ to 7 inches, all thicknesses. Bands and Scrolls, all sizes. Boiler plate and Plough Iron. Railroad and Locomotive Axles and Tires. Locomotive Frames, Spikes and Plates. Hoops, Ovals, Half Ovals, Half Rounds, Angle, T, L, and indeed every description of Iron usually manufactured, all of which he warrants to be equal to any made in this country. He also manufactures at his Foundry and Machine Shops all descriptions of Railroad Work, say, Locomotives, Railroad Wheels and Axles complete and ready for the road, Railroad Chairs, etc. Also, Marine and Stationary Engines all sizes, Sugar mills and Engines, Horse mills, and every kind of Machinery usually required for the operations of the country. He has paid particular attention to getting up machinery, etc., for Gold Mine operations, and those in want of such work might find it to their advantage to give him a call. J. R. ANDERSON.

Richmond, Va., Sept. 10, 1850.

To Contractors.

ALABAMA AND TENNESSEE RIVER R. R.

SEALED Proposals will be received by the Directors of the Alabama and Tennessee River Railroad, at their office in Selma, until the 1st of November next, for the graduation, masonry and bridging of 56 miles of the Southern Division of said road, extending northwardly from Selma.

Plans and profiles may be inspected and specifications and information will be given at the office of the company in Selma, on and after the 15th of October next.

Twenty-six miles of this division were graded in 1839. This part of the division will require repairs to the road bed, and will be furnished anew with culverts and bridges.

The country embraced in this division is healthy, well watered, and possesses facilities for obtaining supplies of provisions.

Proposals may be based upon cash payments, or upon payments of a proportion, or of the whole of the work in stock.

The Directors reserve to themselves the right to accept or reject proposals as they may think proper for the interests of the company.

The Directors expect to have as much as twenty miles of the Northern Division, extending northwardly from the Coosa river in Shelby county, ready for examination by the 15th November, and for letting by the 1st December; and 30 miles more, ready for examination by the 1st and for letting by the 15th of January, 1851. It is likewise their intention to let out the grading, masonry and bridging of the remainder of the Southern Division and of the Northern Division terminating at Gadsden, with all possible despatch.

By order of the President and Directors.

LEWIS TROOST, Chief Engineer.

Selma, Ala., August 30, 1850.

CUT NAILS OF BEST QUALITY, BAR IRON (including Flat Rails) manufactured and for sale by FISHER, MORGAN & CO., 75 N. Water St., Philadelphia.

Great American Engineering

AND MECHANICAL WORK, just published in medium folio One Dollar, 75 cts. to Subscribers.

Part VII of "Specimens of the Stone, Iron & Wood Bridges, Viaducts, Tunnels, Culverts, &c., &c., of the United States Railroads." By George Duggan, Architect and Civil Engineer.

The present part contains beautifully executed plans, elevations, sections and details of the elegant timber Bridge, (Burr's Patent,) 150 feet span, across Salmon River, Malone, on the line of the Northern—Ogdensburg-railroad, and isometrical views of Bridges 30, 40 60, 82 and 88 feet span on the line of the Utica and Syracuse railroad, with specifications, form of contract, &c. &c., for the Connecticut River railroad.

"It is a work that was a great desideratum, and must prove of great benefit to the engineering profession generally, and especially to the tyro in practical engineering and mechanical knowledge; in truth it strikes us, that it would require years of labor and patient toil on the part of a young engineer to prepare the drawings, and collect the information that will be embodied in this work, and can now be secured for the trifling sum of $9"—[Scientific Amer. March 16, 1850.

In connection with this subject (Iron Railroad Structures) we take occasion to call attention again to Mr. Duggan's valuable and expensive publication, exhibiting drawings, with full descriptions of the various stone, iron and wooden bridges, viaducts, tunnels, culverts, etc., of all the Railroads in the United States. Mr. Duggan is an accomplished Architect and Civil Engineer, who came from Ireland to this country to exercise his profession; but finding Railroad construction here, in many respects, different from that he had been accustomed to in Europe, he applied himself to the study of our system; and the fruits of his researches and investigations embodied in this work, are well calculated to meet the exigencies of engineers, and to assist draughtsmen, bridge builders, mechanics and students.—[N. Y. Jour. of Com., Feb. 14, 1850.

Published by GEORGE DUGGAN,
300 Broadway, New York.

To whom all communications should be addressed, and subscriptions forwarded.

Emerson's Patent Ventilator,

ADAPTED to Cars, Engine houses, Public Halls, Factories, Churches, School Houses, Dwellings, Chimney Flues, etc.

This Ventilator is stationary, and cannot get out of order. It is constructed in such conformity to cert in ascertained laws of pneumatics, as to insure a constant draft outward, whatever may be the changing direction of the wind. The Massachusetts Mechanic Association have awarded a gold medal to the Inventor, and the Manufacturers have already disposed of over 3,000 of the article. Manufactured and sold by

CHILSON, ALLEN, WALKER & Co.,
351 Broadway, New York.

NOTICE

For Proposals for Railroad Iron, for the Alabama and Tennessee River Railroad,

TO BE MANUFACTURED FROM ALABAMA ORE.

THE Alabama and Tennessee River Railroad Co. invite proposals, until the 1st of January, 1851, for Iron Rails, to be made of Alabama Iron, for the Northern Division and part of the Southern Division of their road, embracing a distance of about 105 miles. The rails are to be of the H pattern, in lengths of 18 feet, and weighing 63 lbs. per lineal yard. They are to be delivered on the Coosa river, at a landing to be hereafter designated, between Kimulgee ferry and Fort Williams, commencing their delivery on the 1st of November, 1851, and continuing it at the rate of from 80 to 100 tons per week, until the whole quantity required (10,500 tons) shall have been delivered. They are to be inspected by Lewis Troost, Chief Engineer.

It is proper to state to iron masters and capitalists at a distance, that the country traversed by the Northern and part of the Southern divisions of the road abounds in excellent iron ore and bituminous coal, and possesses every advantage for the successful manufacture of iron, health, cheap labor and provisions.

Further information may be obtained by addressing the President of the Company at Selma, Ala.

By order of the Board of Directors.

J. W. LAPSLEY, President.

Great Work on Bridge Building, etc., etc.

JUST published in medium folio, One Dollar, 75 cts. to subscribers.

Part I. of a "THEORETICAL AND PRACTICAL TREATISE ON THE CONSTRUCTION OF BRIDGES IN STONE, IRON AND WOOD," By George Duggan, Architect and Civil Engineer.

The present part contains beautifully executed plans, elevations, sections, and centering, of the Bridge of St. Maixence, France, by M. Perronet, the eminent Architect and Engineer, and plans, elevations, sections, and details of the oblique Timber Bridge, 700 ft. long, constructed for a double track across the River Tyne, on the line of the Newcastle and Carlisle railroad, by John Blackmore, C. E., with an introductory article on the relative merits of the various materials employed in the construction of Bridges, as regards economy, strength and durability, and critical remarks on the various forms of bridges designed and constructed by the most eminent architects and engineers in Europe and America.

"PART VI. of Specimens of the Stone, Iron and Wood Bridges, etc., etc., of the United States Railroads," By George Duggan, Architect and Civil Engineer, contains specimens of the plates and letter press intended for the APPENDIX, being the commencement of a complete Treatise on the Theory and Practice of Bridge Building. This will be one of the most valuable works on the subject ever presented to the attention of engineers in this country—condensing the most important information on this branch of architecture contained in the writings of the most eminent scientific men in the French, German, Italian, and English languages, in the course of the last and present century. It will be illustrated by numerous accurate representations of bridges of the greatest celebrity in modern times. Elaborate articles will be given on the strength, property, and uses of the different materials employed, and on the most approved methods of constructing Coffer Dams, Foundations, Centering, etc., with descriptions and drawings of the various engines and Machines that were found most useful in constructing the works, and a selection of such specifications as may be of service to the practical bridge builder. The sixth number treats of the Application of Iron to Railroad Structures, and is illustrated by beautiful drawings of the Bridge across the Delaware at Saw Mill Rift on the Erie Railroad, and of the bridge over Fairfield street, on the Manchester and Birmingham Railroad. The great success of this work thus far is the best tribute to its scientific merit and its adaptation to the wants of the American engineer."—[New York Daily Tribune, June 28, 1850.

Published by George Duggan, 300 Broadway, New York, to whom all communcations should be addressed and subscriptions forwarded.

☞ Parties remitting Mr. Duggan $5. and the remainder $4 when they have been supplied with the first six parts of the "Theoretical and Practical Treatise on Bridge Building, etc.." shall receive it monthly as published. To those making Mr. Duggan a present remittance of $9, the work will be forwarded post free to any part of the United States.

Rosendale Cement.

THE NEWARK AND ROSENDALE LIME AND CEMENT CO. are now manufacturing at their works in NEWARK, N. J., and Ulster county, N.Y., a very superior article of *Hydraulic Cement*—also Lime Calcine Plaster, etc. Contractors and dealers will find it to their advantage to call or make application before purchasing elsewhere. All communications addressed to the subscriber, at Newark, N.J., will be punctually attended to.

1y*15 HENRY WILDE, Secretary.

Notice to Contractors.

SEALED PROPOSALS will be received at the office of the James River and Kanawha Company in Richmond, until the 1st day of October next, for the construction of the Piers and Abutments of the Bridges across James River at New Canton, Hardwicksville and Bent Creek. This work will be paid for in cash. Besides the usual reservation of 20 per cent. on the monthly estimates, the contractor or contractors will be required to give ample security, satisfactory to the Board of Directors, for the completion of the work at the time and in the manner specified in the contracts.

Plans of the above works will be exhibited and specifications thereof delivered to the contractors at the office of John Couty, the Assistant Engineer in charge of the same in Columbia.

WALTER GWYNN,
Chief Eng. J. R. & K. Co.

August 16, 1850.

GRAHAM'S COMPOSITION, to Remove and Prevent Incrustation (or Scale) in STEAM BOILERS.

THIS valuable composition having been fully and extensively tested, is now offered to the public, as a sure remedy and preventive for incrustations in steam boilers of all descriptions. By its use, all scale is entirely removed from the boilers of Ocean and River Steamers, Locomotive and Stationary Engines, in from 3 to 20 running days, according to the size of the boiler and thickness of the scale. In New Boilers, all incrustation is prevented at a trifling expense.

The preservation of the boiler, great economy of fuel and labor, safety, and increased speed, are among the advantages to be derived from the use of this composition.

Orders should state the quality of water used, viz: "Salt," "Fresh," or "Brackish."

For sale, with directions for use, by

W. H. NEWMAN,
75 Pearl street,
New York.

—

TESTIMONIALS.

New York. August 17, 1850.

We have used Graham's Composition in the boilers of the Steamship Southerner, during several voyages between this place and Charleston. The boilers were old and very foul with scale, a very large quantity of which was removed by the use of the composition, and no new scale was formed.

From our own experience and observation in the use of the article, we are fully satisfied that it will effectually remove the incrustation made by sea water, and also that it will effectually prevent its formation.

We are also satisfied that the use of it will be attended with a great saving of fuel, and that it has no injurious effect upon iron.

DAVID N. MAXON, Engineer,
BERRY, Master,
Steamship Southerner.

—

Steamship Philadelphia,
New York, August 27, 1850.

I have used "Graham's Composition for Steam Boilers," in the boilers of Steamship Philadelphia, on the voyage to and from Chagres, and am entirely satisfied that it will remove, dissolve and *prevent* all scale or incrustation in salt water boilers.

For the preservation of the boiler and economy of fuel and labor, I hereby recommend the employment of this composition in the Boilers of Ocean Steamers.

WM. BISBY,
Chief Engineer.

—

Novelty Iron Works,
New York, July 5, 1850.

We have examined the specimen of Graham's Composition for preventing incrustation of steam boilers, and we believe it may be used with perfect safety in reasonable quantities for the purpose intended, as there does not appear to be any agent in the composition calculated to injure the iron.

STILLMAN, ALLEN & CO.

—

Piermont, May 20, 1850.

I have used "Graham's Composition," and find it to produce the intended effect; and I hereby, without hesitation, recommend it for Stationary, Marine and Locomotive Engine Boilers.

JOHN BRANDT,
Superintendent Motive Power
New York & Erie R.R.

New York, July 25, 1850.

In answer to many inquiries as to the practical effect of "Graham's Composition," I will state that I have used it in the boiler of the Steamboat Sunwick, which had become considerably incrusted with hard scale from both salt and fresh water. We used 10 lbs. per day, for three days, without blowing off the water, until the fifth day, when all was drawn off. To our astonishment, we found the whole interior of the boiler as clear of scale and smooth as when it came from the hands of the maker. The following week, we tried the same quantity in a small steam tow boat.—The boiler had old scale of long accumulation and very thick. We ran the boat three days without blowing off, and on the fourth day washed out the boiler and found it, like the "Sunwick's," perfectly clean and smooth as when new. I am therefore enabled to state that the use of the composition in these two instances under my own immediate observation and direction, has been attended with complete success.

JAMES MORROW,
Engineer Astoria Ferry.

Faggotted Car and Engine Axles

FORGED by RANSTEAD, DEARBORN & Co., Boston, Mass.

These Axles enjoy the highest repulation for excellence, *and are all warranted.*

Ogden & Martin's ROSENDALE CEMENT.

WE are prepared to enter into arrangements for supplying our Cement for public works or other purposes. We warrant the cement equal in every respect to any manufactured in this country. It attains a great degree of hardness, setts immediately under water, and is a superior article for masonry coming in contact with water, or requiring great strength.

For sale in tight barrels, well papered, at their office by OGDEN & MARTIN, 104 Wall st.

February 16, 1850. 1y*

The above cement is used in most of the fortifications building by government.

Railroad and Mathematical Instruments.

KUNS & BASELER, Mathematical Instrument makers, manufacture and keep for sale all kinds of mathematical instruments: also drawing instruments, scales and balances for the use of chemists, professional gentlemen, jewellers, etc., etc., of the most perfect description, at the lowest price, at 81 Nassau street, New York.

Ibbotson, Brothers & Co's CELEBRATED CAST STEEL AND

Best Cast Steel Royal Improved Files, well known as better adapted for Engineers' and Machinists' purposes than any now in use in the United States.

Every description of Square, Octagon, Flat and Round Cast Steel, Sheet, Shovel and Railway Spring Steel, etc., and Steel to order for any purposes—manufactured at their works in Sheffield—and universally known by the old stamp "Globe."

HENRY I. IBBOTSON, Agent., 218 Pearl st., New York.

Railroad Iron.

OF ANY PATTERN AND WEIGHT, *Of a Favorite Brand,*

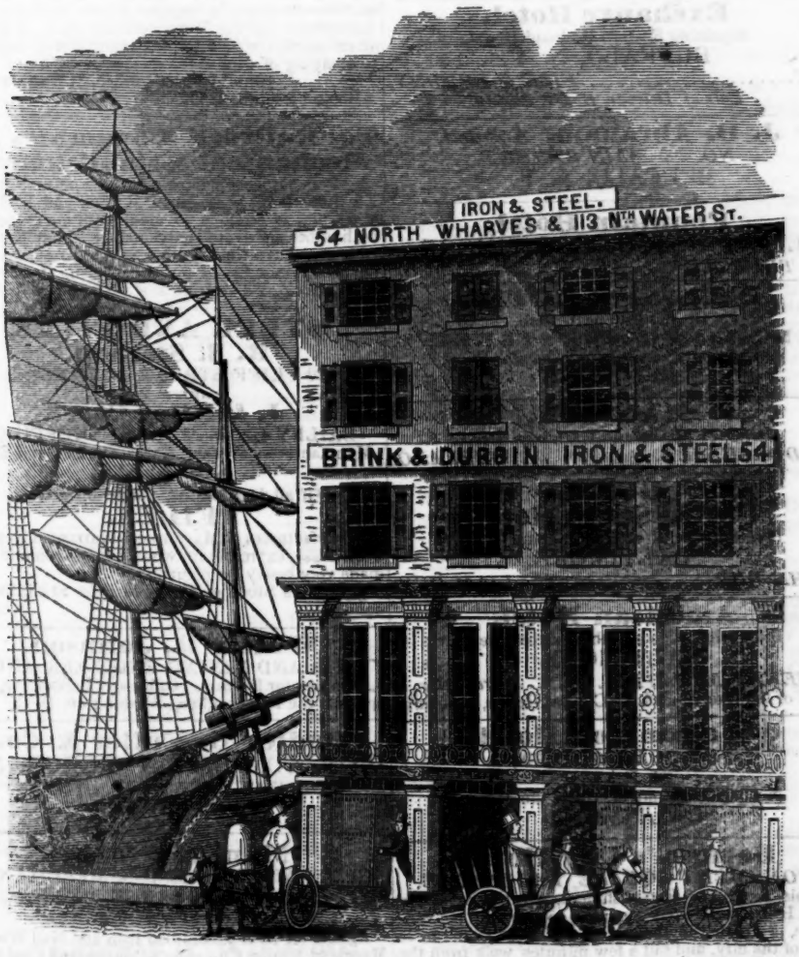
And deliverable in Bond, or Duty paid, at any Port of the U. S., contracted for on favorable terms, by CHARLES ILLIUS, 20 Beaver St., New York.

Pig and other Iron also contracted for. Sole Agent for "*Baxter's Machine and Burning Oil*"—particularly adapted for "*Railroads*" and other Machinery—Preferred to Sperm by the many now using it, and 25 *per cent. cheaper.*

Coal.

CUMBERLAND SEMI-BITUMINOUS COAL superior quality for Locomotives, for sale by H. B. TEBBETTS, No. 40 Wall St., New York.

May 12, 1849. 1m19

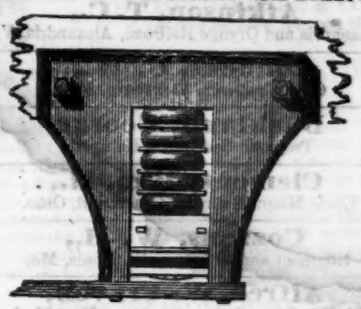


To Merchants, Railroad Companies, Machinists and Boiler Makers.

THE subscribers beg leave to call attention to their very large stock of *Iron* and *Steel*—of American, English, Swede and Norway make—of all the different kinds in use. Also, Railroad Iron, Ship, Boat and Railroad Spikes. They are also Agents for the *Best Pennsylvania Locomotive Boiler and Tank Iron*, each sheet of which will be *stamped and warranted*, at lowest mill prices. Our prices for all kinds of iron will be found *very low*, either for cash or approved credit.

BRINK & DURBIN, *Philadelphia.*

FULLER'S PATENT INDIA RUBBER SPRING.



THESE SPRINGS ARE THE CHEAPEST, the lightest and most durable of any yet known. They are easily applied to new or old cars, and there is small possibility of any accident occurring to them.

Other parties through Mr. Ray set up claims to an India Rubber Spring which, though the same in principle, is very inferior in its working and durability.—Actions are in progress for an Infringement on Fuller's Patent against parties using that Spring.

The superiority of Fuller's Spring over that claimed by Mr. Ray is fully established and has frequently been testified to. The following are from gentlemen who have had much experience with both Springs.

—

"It will afford me pleasure to recommend your springs to the companies in this region, in preference to Ray's which I am confident are inferior in mechanical arrangement to yours." JOHN M'RAE, Engineer S. Carolina R. R., Charleston.

—

"I do not hesitate to allow you to say that I concur in Mr. M'Rae's opinion that Ray's springs are inferior in mechanical arrangement to Fuller's. I repeatedly expressed that opinion long before Mr. M'Rae had seen your springs (as I believe) and entertain it still." WM. PARKER, Gen'l Supt. of Baltimore and Ohio R. R.

—

Office of Sup't Norwich & Worcester R.R Co. December 26, 1849.

"I most fully concur in the opinion of Jno. McRae, Engineer of S. Carolina Railroad, that 'Rays Springs are inferior to Fuller's Springs;' and shall with pleasure recommend them to all Railroad Companies for adoption. I have used both springs on this road and have no hesitation in saying that I should in all cases prefer Fuller's Spring." SAM'L H. P. LEE, JR., Sup't and Engineer.

—

Office B. & P. R. R. Co., Boston, 20th December, 1849.

"This company have cars fitted up with both Ray's and Fuller's 'Metallic India Rubber Springs,' and do not hesitate to say that Fuller's arrangement *very much superior* to Ray's. W. RAYMOND LEE, Sup't.

—

The following result has been obtained by experiment upon one railroad.

A set of Trucks fitted with Steel Springs cost	$190·77	and weigh 2355 lbs.
The same with Fuller's Springs, . . .	131·71	" 1911 lbs.
Difference, . .	$59·06	" 444 lbs.

Not only is there an advantage in the cost, but owing to the great reduction in weight, the car can be made lighter throughout, and so an enormous saving in weight may be effected in a Train.

AGENTS.

G. M. KNEVITT, 38 Broadway, N. Y.,
JOHN THORNLEY, 110 Chestnut St., Philad.
The BOSTON BELTING CO., Milk st., Boston.

January 2, 1850.

American Cast Steel.

THE ADIRONDAC STEEL MANUFACTURING CO. is now producing, from American iron, at their works at Jersey City, N.J., Cast Steel of extraordinary quality, and is prepared to supply orders for the same at prices below that of the imported article of like quality. Consumers will find it to their interest to give this a trial. Orders for all sizes of hammered cast steel, directed as above, will meet with prompt attention.

May 28, 1849.

ENGINEERS.

Atkinson, T. C.,
Alexandria and Orange Railroad, Alexandria, Va.

Bancks, C. W.,
Civil Engineer, Vicksburg, Miss.

Buckland, George,
Troy and Greenbush Railroad.

Clement, Wm. H.,
Little Miami Railroad, Cincinnati, Ohio.

Cozzens, W, H,,
Engineer and Surveyor, St. Louis, Mo.

Alfred W. Craven,
Chief Engineer Croton Aqueduct, New York.

Davidson, M. O.,
Eckhart Mines, Alleghany Co., Maryland.

Fisk, Charles B.,
Cumberland and Ohio Canal, Washington, D. C.

Felton, S. M.,
Fitchburgh Railroad, Boston, Mass.

Floyd-Jones, Charles,
South Oyster Bay, L. I.

Gzowski, Mr.,
St. Lawrence & Atlantic Railroad, Montreal, Canada.

Gilbert, Wm. B.,
Rutland and Burlington Railroad, Rutland, Vt.

Grant, James H.,
Nashville and Chattanooga R. R., Nashville, Tenn.

S. W. Hill,
Mining Engineer and Surveyor, Eagle River, Lake Superior.

Hewson, M. Butt,
Memphis, Tenn.

Holcomb, F. P.
Southwestern Railroad, Macon, Ga.

Johnson, Edwin F.
New York and Boston Railroad, Middletown Ct.

Latrobe, B. H.,
Baltimore and Ohio Railroad, Baltimore, Md.

Miller, J. F.,
Worcester and Nashua Railroad, Worcester, Mass.

Morris, Elwood,
Schuylkill Navigation, Schuylkill Haven, Pa.

Morton, A. C.,
Atlantic and St. Lawrence Railroad, Portland, Me.

McRae, John,
South Carolina Railroad, Charleston, S. C.

Nott, Samuel,
Lawrence and Manchester Railroad, Boston,

Prichard, M. B.,
East Tennessee and Georgia R. R., Cleveland, Tenn.

Roebling, John A.,
Trenton, N. J.

W. Milnor Roberts,
Bellefontaine and Indiana Railroad, Marion, Ohio.

Roberts, Solomon W.,
Ohio and Pennsylvania Railroad, Pittsburgh, Pa.

Sanford, C. O.,
South Side Railroad, Virginia.

Schlatter, Charles L.,
Northern Railroad (Ogdensburg), Malone, N. Y.

Sours, Peter,
Rahway, New Jersey.

Stark, George.,
Bost., Con. and Mont. R. R., Meredith Bridge, N. H.

Steele, J. Dutton,
Pottstown, Pa.

Trautwine, John C.,
Panama Railroad—Address through office of Panama Railroad Co., 78 Broadway, N. Y.

Trimble, Isaac R.,
Philad., Wil. & Baltimore Railroad, Wilmington, Del.

Tinkham, A. W.,
United States Fort, Bucksport, Me.

Thomson, J. Edgar.,
Pennsylvania (Central) Railroad, Philadelphia.

Troost, Lewis,
Alabama and Tennessee Railroad, Selma, Ala.

Whipple, S.,
Civil Engineer and Bridge Builder, Utica, N. Y.

Williams, E. P.,
Auburn and Schenectady Railroad, Auburn, N. Y.

Williams, Charles H.,
Milwaukie, Wisconsin.

HOTELS.

Exchange Hotel,
Adjoining Eastern Railroad Depot,
BUFFALO, N. Y.
BY.....FISK & SPERRY,
Late of Delevan House, Albany.

J. D. Abraham, *Architect,*
NO. 300 MAIN STREET,
BFFFALO, N. Y.

Fountain Hotel,
LIGHT STREET, BALTIMORE,
P. THURSTON.....Proprietor.

DUNLAP'S HOTEL,
On the European Plan,
NO. 135 FULTON STREET,
Between Broadway and Nassau St.,
NEW YORK.

MANSION,
Corner of Maine and Exchange Streets,
P. DORSHIMER. BUFFALO.

GUY'S
United States Hotel,
(Opposite Pratt street Railroad Depot,)
BALTIMORE.
JOHN GUY. WILLIAM GUY.

American Hotel,
Pratt street, opposite the Railroad Depot,
BALTIMORE.
HENRY M. SMITH.....Proprietor.
Late of the Exchange & St. Charles Hotels, Pittsburg.

Washington Hotel,
BY JOHN GILMAN,
$1 *Per Day.*
No. 206 Pratt street, (near the Depot,)
BALTIMORE.

Barnum's City Hotel,
MONUMENT SQUARE, BALTIMORE.
This Extensive Establishment, erected expressly for a Hotel, with every regard to comfort and convenience, is situated in the centre and most fashionable part of the city, and but a few minutes' walk from the Railroad Depots and Steamboat Landings.
The House has lately undergone a thorough repair, embracing many valuable improvements, and will accommodate 250 Guests. BARNUM & CO.

JONES' HOTEL,
NO. 152 CHESTNUT STREET,
PHILADELPHIA.
Bridges & West, ... Proprietors.

BUSINESS CARDS.

Lithography.
JOHN P. HALL & CO.,
161 Main st., Buffalo, (Commercial Advertiser Build.)
Are prepared to execute all kinds of Lithography in good stole and at reasonable rates. Particular attention wil be paid to Engraving Railroad Maps, Engineer's Plans and drafts, etc., and orders in this line are respectfully solicited.

J. T. Hodge
Will attend to the examination of mining tracts near Lake Superior, and prepare Reports and Maps.
Address, during the Summer,
Ontanagon Postoffice, Lake Superior.

Cumberland Steam Coal,
FROM THE
FROSTBURG MINES, MD.
H. A. TUCKER,
Agent of Frostburg Coal Co.
No. 50 Wall Street, New York.

Eaton, Gilbert & Co.,
Railroad Car, Coach and Omnibus Builders,
TROY, N. Y.

Charles T. Jackson, M. D.,
STATE ASSAYER, late Geologist to Maine, Rhode Island, New Hampshire, and the United States, offers his services to his friends and the public in making any Chemical, Mineralogical or Geological researches that may be required for the improvement of Agriculture and the Manufacturing Arts. Particular attention wili be paid to the exploration of mines and to assaying of ores of the metals.
State Assayer's office, 31 Somerset st.
Boston Sept. 3, 1850.

To Railroad Companies and Mechanical Establishments.
A Person of considerable experience and practical knowledge in Mechanical, Civil and Marine Engineering, is anxious to meet with an engagement with either a Private Individual or Public Company, who may have works either to design or execute in the above branches of the Engineering Profession.
Address Z. Y., 47 Atlantic st., South Brooklyn, L.I.

STEEL AND FILES.
R. S. Stenton,
20 CLIFF STREET, NEW YORK,
AGENT FOR
J. & Riley Carr's
BAILEY-LANE WORKS, SHEFFIELD,
Manufacturers of Cast, Shear, German and Blister
STEEL
Of all descriptions. *Warranted* Good
FILES.
Manufacturers of Machinists' Warranted Best Cast Steel *Files*, expressly for woring upon Iron and Steel, made very heavy for recutting.
☞ A full Stock of *Steel* and *Files* at all times on hand. 6m4

Walter R, Johnson,
CIVIL AND MINING ENGINEER AND ATTORNEY for Patents. Office and Laboratory, F St., opposite the Patent office, Washington, D. C.

Dudley B. Fuller & Co.,
IRON COMMISSION MERCHANTS,
No. 139 GREENWICH STREET,
NEW YORK.

Manning & Lee,
GENERAL COMMISSION MERCHANTS,
NO. 51 EXCHANGE PLACE,
BALTIMORE.
Agents for Avalon Railroad Iron and Nail Works. Maryland Mining Company's Cumberland Coal 'CED —'Potomac' and other good brands of Pig Iron.

Cop Waste.
CLEAN COP WASTE, suitable for cleaning Railroad, Steam oat and Stationary Engines, constantly an hand and for sale by
KENNEDY & GELSTON,
5½ Pine St., New York.
October 27, 1849, 3m

Plushes for Railway Cars, Omnibuses, etc.

F. S. & S. A. MARTINE,

112 WILLIAM ST., NEAR JOHN.

ARE now receiving a large and complete assortment of Plain and Figured PLUSHES, of their own importation, which will be sold at the lowest market price, viz: Crimson, Maroon, Scarlet, Green, Blue, Purple, etc.

ALSO—CURLED HAIR, the best manufactured in market.

Samuel Kimber & Co., COMMISSION MERCHANTS

WILLOW ST. WHARVES, PHILADELPHIA.

AGENTS for the sale of Charcoal and Anthracite Pig Iron, Hammered Railroad Car and Locomotive Axles, Force Pumps of the most approved construction for Railroad Water Stations and Hydraulic Rams, etc., etc.

July, 27, 1849.

James Herron, *Civil Engineer*,

OF THE UNITED STATES NAVY YARD,
PENSACOLA, FLORIDA.,
PATENTEE OF THE
HERRON RAILWAY TRACK.

Models of this Track, on the most improved plans, may be seen at the Engineer's office of the New York and Erie Railroad.

To Railroad Companies.

—WROUGHT IRON WHEELS—
SAFETY AND ECONOMY.
NORRIS' LOCOMOTIVE WORKS,
SCHENECTADY, NEW YORK,

Are Manufacturing Wrought Iron Driving, Truck, Tender, and Car Wheels—made from the best American Iron. Address E. S. NORRIS.

May 16, 1849.

Manufacture of Patent Wire ROPE AND CABLES,

For Inclined Planes, Suspension Bridges, Standing Rigging, Mines, Cranes, Derrick, Tillers, &c., by
JOHN A. ROEBLING, Civil Engineer,
TRENTON, N. J.

Doremus & Harris,

ANALYTICAL & CONSULTING CHEMISTS,
179 BROADWAY, NEW YORK.
☞SCHOOL OF CHEMISTRY.☜

To Engineers and Surveyors.

E. BROWN AND SON Mathematical inst. makers No. 27 Fulton Slip, New York, make and keep for sale, Theodolites, Levelling inst., Levelling rods, Surveyors Compasses, and Chains, Cases of Mathematical drawing insts. various qualities, together with a general assortment of Ivory Scales and small insts. generally used by Engineers.

Ranstead, Dearborn & Co.,

MANUFACTURERS OF
LOCOMOTIVE CRANKS AND CAR AXLES,
ALSO
WROUGHT IRON SHAFTING,
And All Kinds of Hammered Shapes.

Forge at Commercial Point, Dorchester,
Office 25 Foster's Wharf, opposite No. 211 Broad St.
BOSTON.

Henry I. Ibbotson,

IMPORTER of Sheffield and Birmingham Goods. Also, Agent for the Manufacture of Telegraph Wire. 218 PEARL ST., NEW YORK.

Cumberland, (Md.,) Coals for Steaming, etc.

ORDERS RECEIVED FOR AND FILLED by J. COWLES, 27 Wall St., N. Y.

Samuel D. Willmott,

MERCHANT, AND MANUFACTURER OF
CAST STEEL WARRANTED SAWS,
—AND FILES—
IMPORTER OF THE
GENUINE WICKESRLY GRINDSTONES
NO. 8 LIBERTY STREET,
NEW YORK.

Railroad Instruments.

THEODOLITES, TRANSIT COMPASSES, and Levels, with Fraunhoffers Munich Glasses, Surveyor's Compasses, Chains, Drawing Instruments, Barometers, etc., all of the best quality and workmanship, for sale at unusually low prices, by
E. & G. W. BLUNT,
No. 179 Water St., cor. Burling Slip.
New York, May 19, 1849.

IRON.

Railroad Iron.

3,000 TONS C. L. MAKE 63½ lbs. per yard, now landing and to arrive.

Also contracts made for future delivery of above superior make English Iron.

300 Tons Banks Best Iron, Round, Square and Flat.
200 " English Bar " " " "
10 " 9-16 Square Iron for Railroad Spikes.

For sale in lots to suit purchasers by
DAVID W. WETMORE.
New York, March 26, 1850. 3m

Railroad Iron.

THE Undersigned, Agents for Manufacturers, are prepared to contract to deliver Rails of superior quality, and of any size or pattern, to any ports of discharge in the United States.
COLLINS, VOSE & CO.,
74 South St.
New York, June 1, 1850.

Railroad Iron.

1,500 Tons weighing 58 lbs. per lineal yard.
500 " " 57 " "
500 " " 56 " "
500 " " 60 & 61 lbs, "

Also 2½x½ flat rails. All the above being of approved patterns. For sale by
DAVIS, BROOKS, & CO.,
68 Broad street.

N.B.—Rails imported on commission, or at a fixed price.

Iron.

Pig Iron, Anthracite and Charcoal; Boiler and Flue Iron, Spring and Blistered Steel, Nail Rods, Best Refined Bar Iron, Railroad Iron, Car Axles, Nails, Stove Castings, Cast Iron Pipes of all sizes, Railway Chairs of approved patterns' for sale by
COLEMAN, KELTON & CAMBELL,
109 N. Water St., Philadelphia.

IRONDALE PIG METAL, MANUFACTURED and for sale by the Bloomsburg Railroad Iron Co.
LINDLEY FISHER, Treasurer.
75 N. Water St., Philadelphia.

Railroad Iron.

2000 Tons, weighing 58 pounds per lineal yard, of the most approved pattern of T rails, in store and to arrive, for sale by
COLLINS, VOSE & CO.,
74 South St.
New York, June 1, 1850.

Railroad Iron.

1650 Tons, weighing about 61 lbs. per yard, 40 tons, weighing about 52 lbs. per yard, and 825 tons, weighing about 53½ lbs. per yard, of the latest and most approved patterns of T rail, for sale by
BOORMAN, JOHNSTON & CO.,
119 Greenwich street.
New York, Aug. 26, 1850.

N.B.—B., J. & Co are also prepared to take contracts for English rails, delivered in any of the Atlantic ports of the United States.

Railroad Iron.

THE UNDERSIGNED, HAVING made arrangements abroad, are prepared to contract for the delivery of Foreign rails, of approved brands upon the most favorable terms.

They will also make contracts for American rails, made at their Trenton works, from Andover Iron, in whole or in part, as may be agreed upon.

They are prepared to furnish Telegraph, Spring and Market Wire; Braziers and Wire Rods; Rivets and Merchant Bars to order, all made exclusively from Andover Iron. The attention of parties who require iron of the *very best* quality for special purposes, is respectfully invited.
COOPER & HEWITT,
17 Burling Slip, New York.
February 15, 1850.

Glendon Refined Iron.

Round Iron, Band Iron, Hoop Iron,
Square " Flat " Scroll "
Axles, Locomotive Tyres,

Manufactured at the Glendon Mills, East Boston, for sale by
GEORGE GARDNER & CO.,
5 Liberty Square, Boston, Mass.
Sept. 15, 1849. 3m37

PATENT HAMMERED RAILROAD, SHIP & BOAT SPIKES.—The Albany Iron Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscribers at the works will be promptly executed.
JOHN F. WINSLOW, *Agent*.
Albany Iron and Nail Works, Troy, N. Y.

The above Spikes may be had at factory prices, of Erastus Corning & Co Albany; Merritt & Co., New York; E. Pratt & Brother, Baltimore Md.

LAP—WELDED WROUGHT IRON TUBES FOR TUBULAR BOILERS,

FROM ONE AND A QUARTER TO SEVEN INCHES IN DIAMETER.

THE ONLY Tubes of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.
THOMAS PROSSER & SON, Patentees,
28 Platt street, New York.

Railroad Iron.

THE UNDERSIGNED ARE PREPARED TO contract for the delivery of English Railroad Iron of favorite brands, during the Spring. They also receive orders for the importation of Pig, Bar, Sheet, etc. Iron. THOMAS B. SANDS & CO.,
73 New street,
February 3, 1849. New York.

Iron Store.

THE Subscribers, having the selling agency of the following named Rolling Mills, viz: Norristown, Rough and Ready, Kensington, Triadelphia, Pottsgrove and Thorndale, can supply Railroad Companies, Merchants and others, at the wholesale mill prices for bars of all sizes, sheets cut to order as large as 58 in. diameter; Railroad Iron, domestic and foreign; Locomotive tire welded to given size; Chairs and Spikes; Iron for shafting, locomotive and general machinery purposes; Cast Shear, Blister and Spring Steel; Boiler rivets; Copper; Pig iron, etc., etc.
MORRIS, JONES & CO.,
Iron Merchants,
Schuylkill 7th and Market Sts., Philadelphia.
August 16, 1849. 1y33

Railroad Iron.

THE MOUNT SAVAGE IRON WORKS, Alleghany county, Maryland, having recently passed into the hands of new proprietors, are now prepared, with increased facilities, to execute orders for any of the various patterns of Railroad Iron. Communications addressed to either of the subscribers will have prompt attention. J. F. WINSLOW, *President*
Troy, N.Y.
ERASTUS CORNING, Albany.
WARREN DELANO, Jr., N.Y.
JOHN M. FORBES, Boston.
ENOCH PRATT, Baltimore, Md.
November 6, 1848.

Railroad Iron.

THE SUBSCRIBERS ARE PREPARED TO take orders for Railroad Iron to be made at their Phœnix Iron Works, situated on the Schuylkill River, near this city, and at their Safe Harbor Iron Works, situated in Lancaster County, on the Susquehannah river; which two establishments are now turning out upwards of 1800 tons of finished rails per month.

Companies desirous of contracting will be promptly supplied with rails of any required pattern, and of the very best quality.
REEVES, BUCK & CO.
45 North Water St. Philadelphia.
March 15, 1849.

Monument Foundry.

A. & W. DENMEAD & SON,
Corner of North and Monument Sts.,—Baltimore,
HAVING THEIR
IRON FOUNDRY AND MACHINE SHOP
In complete operation, are prepared to execute faithfully and promptly, orders for
Locomotive or Stationary Steam Engines,
Woolen, Cotton, Flour, Rice, Sugar Grist, or Saw Mills,
Slide, Hand or Chuck Lathes,
Machinery for cutting all kinds of Gearing.
Hydraulic, Tobacco and other Presses,
Car and Locomotive patent Ring Wheels, warranted,
Bridge and Mill Castings of every description,
Gas and Water Pipes of all sizes, warranted,
Railroad Wheels with best faggotted axle, furnished and fitted up for use, complete

☞Being provided with Heavy Lathes for Boring and Turning Screws, Cylinders, etc., we can furnish them of any pitch, length or pattern.

☞ Old Machinery Renewed or Repaired—and Estimates for Work in any part of the United States furnished at short notice.

June 8, 1849.

Iron Wire.

REFINED IRON WIRE OF ALL KINDS, Card, Reed, Cotton-flyer, Annealed, Broom, Buckle, and Spring Wire. Also all kinds of Round, Flat or Oval Wire, best adapted to various machine purposes, annealed and tempered, straightened and cut any length, manufactured and sold by

ICHABOD WASHBURN.
Worcester, Mass., May 25, 1849.

Wheel, Forge and Foundry Iron.

LOCUST GROVE Wheel Iron of great strength and superior chilling property.

Balt. Charcoal Forge Iron, from Patuxent, Curtis Creek and Gunpowder furnaces.

Elkridge Foundry Iron, of superior strength and softness. Anthracite and Charcoal Iron from Pennsylvania and Virginia. Gas and Water Pipes, Lamp Posts from Elkridge furnace.

LEMMON & GLENN,
6m9 62 Buchanan's Wharf, Baltimore.

S. S. Keyser & Co., IRON WAREHOUSE,

Corner of South and Pratt Streets,
BALTIMORE, MD.

Selling Agents for the Rough and Ready Bar Iron and Elk Boiler and Flue Iron Rolling Mills, Sarah and Taylor Furnaces, and Wrightsville Hollow Ware Foundry, and Dealers in Bar and Sheet Iron, and Cast, Sheer, German, Blister, Spring and Electerised Steel, etc., etc.

Smith & Tyson,

GENERAL COMMISSION MERCHANTS,
No. 25 South Charles St., Baltimore, Md.

AGENTS for the Celebrated Columbia Pig Iron, suitable for Car Wheels and Chilled Rolls.

Columbia refined Charcoal Blooms; Refined Charcoal Juniatta Billet Iron for Wire; Refined Iron for Bridging, of great strength; Cut Nails, Spikes, and Brads; Railroad Spikes and Wrought Chairs. 22tf

Stickney & Beatty,

DEALERS IN IRON AND IRON MANUFACTURERS.

AGENTS for the Balt. City Rolling Mill, from which establishment they are prepared to furnish Ellicott's round, square, and flat bar iron, puddled and charcoal boiler plates and billet iron—also agents for the sale of the Laurel and Maryland (Balt.) charcoal forge pig irons, Balt. hard iron for chilling wheels, anti-Eatam nails, Catoctin foundry iron, boiler blooms from the Caledonian works, Wm. Jessop & Son's cast steel, Coleman's blister steel and nail rods, hoop, band, sheet, oval and common English iron.

Nos. 18 and 20 South Charles st., Baltimore.

Railroad Iron.

CONTRACTS made by the subscribers, agents for the manufacturers, for the delivery of Railway Iron, at any port in the United States, at fixed prices, and of quality tried and approved for many years, on the oldest railways in this country.

RAYMOND & FULLERTON, 45 Cliff st.

Iron.

THE SUBSCRIBERS having resumed the agency of the New-Jersey Iron Company, are prepared to execute orders for the different kinds and sizes of Iron usually made at the works of the company, and offer for sale on advantageous terms.—

150 tons No. 1 Boonton Foundry Pig Iron.
100 " No. 2 do. do. do.
300 " Nos. 2 & 3 Forge do. do.
100 " No. 2 Glendon do. do.
140 " Nos. 2 & 3 Lehigh Crane do do.
100 " No. 1 Pompton Charcoal do.
100 " New-Jersey Blooms
50 " New-Jersey Faggoting Iron, for shafts
Best Bars, ¼ to 4 inch by ¼ to 1 inch thick.
Do do Rounds and Squares, ½ to 3 inch.
Rounds and Squares, 3-16 to 1 inch.
Half Rounds, ¼ to 1 in. Ovals & Half Ovals ¼ to 1½ in.
Bands, 1½ to 4 inch. Hoops, ½ to 2 inch.
Trunk Hoops, ½ to 1½ in. Horse Shoe & Nut Iron.
Nail Plates. Railroad Spikes.

DUDLEY B. FULLER & Co., 139 Greenwich-st. and 85 Broad-st.

WILLIAM JESSOP & SONS' CELEBRATED CAST-STEEL.

The subscribers have on hand, and are constantly receiving from their manufactory,
PARK WORKS, SHEFFIELD,
Double Refined Cast Steel—square, flat and octagon.
Best warranted Cast Steel—square, flat and octagon.
Best double and single Shear Steel—warranted.
Machinery Steel—round.
Best and 2d gy. Sheet Steel—for saws and other purposes.
German Steel—flat and square, "W. I. & S." "Eagle" and "Goat" stamps.
Genuine "Sykes," L Blister Steel.
Best English Blister Steel, etc., etc., etc.

All of which are offered for sale on the most favorable terms by WM. JESSOP & SONS,
91 John street, New York.

Also by their Agents—
Curtus & Hand, 47 Commerce street, Philadelphia.
Alex'r Fullerton & Co., 119 Milk street, Boston.
Stickney & Beatty, South Charles street, Baltimore.
May 6, 1848.

JOHNSON, CAMMELL & Co's Celebrated Cast Steel,

AND

ENGINEERING AND MACHINE FILES,

which for quality and adaptation to mechanical uses, have been proved superior to any in the United States. Every description of square, octagon, flat and round cast steel, sheet, shovel and railway spring steel, best double and single shear steel, German steel, flat and square, goat stamps, etc. Saw and file steel, and steel to order for any purposes, manufactured at their Cyclops Steel Works Sheffield.

JOHNSON, CAMMELL & CO.,
100 William St., New York.
November 23 1849.

Railroad Iron.

THE Undersigned, Agents for Manufacturers, are prepared to contract for the delivery of English, Welsh and Scotch Rails, of any pattern and weight, also for every description of English, Welsh, Scotch, and Swedish Iron, Railway Chairs and Spikes, Rivets, Bolts, Nuts, Washers, Chain Cables, Anchors, Tin Plates, German Spelter, Iron Castings, and every description of Machinery.

WILLIAM BIRD & CO.,
Iron and Tin Plate Merchants,
44 Wall st., New York.
And at 5 Martin's Lane, City, London,
and 140 Buchanan st., Glasgow.
July 27th, 1850.

To the Proprietors of Rolling Mills and Iron Works.

THE Undersigned—Proprietors of Townsend's Furnace and Machine Shop, Albany—are extensively engaged in the manufacture of Machinery and fixtures for Iron, and Copper Rolling Mills, and Iron Works. Having paid particular attention to the manufacture of *Rolls* (Rollers), both *chilled* and *dry-sand*, they feel confident that they can execute orders for such castings in a satisfactory manner. And to give assurance of this, they beg leave to refer to the following named persons, proprietors and managers of some of the most extensive rolling mills in the country, viz: Jno. F. Winslow, J. Tuckerman, H. Burden, W. Burtt, J. & J. Rogers, Saltus & Co., J. B. Bailey, L..G. B. Cannon, Hawkins & Atwater, etc., etc.

F. & T. TOWNSEND.
Albany, August 18, 1849.

Railroad Iron.

B. O. Railway Tires, Railway Wheels,
Scotch Pig Iron, Tin Plates and Banca Tin,
Muntzs Patent Metal Sheathing,
Baltimore Copper.

Contracts for Rails made on behalf of the manufacturers, for delivery at any ports in the United States, at fixed prices.

Bowling Tires and Tire Bars and Scotch Pigs imported to order.

Muntz's Ship-sheathing, and a general stock of Tin Plates and Banca Tin in store, and for sale by

RAYMOND & FULLERTON, 45 Cliff st.

Bowling Iron. Stamped B.O.

Railway Tire Bars	Rivet Iron
Locomotive and other Axles	Locomotive Frame do Bars,
Boiler Plates	

and every other description of this superior Iron.

The subscribers, agents for the sale of Bowling Iron, are prepared to execute orders for importation, especially for railway and machinery uses, with despatch from the manufacturers.

RAYMOND & FULLERTON, 45 Cliff st.

Lovegrove's Patent Cast Iron Water and Gas Pipes.

THE Subscriber, the Inventor and Patentee of the Centrifugal mode of giving form to metallic substances while in a molten state, is preparing to make Cast Iron Water and Gas Pipes, of any dimensions, at prices much lower than they can be made in the old manner, and the pipes warranted to stand a pressure of three hundred pounds to the square inch, and to be soft enough to drill. Steam Engines and all kinds of machinery. Cast Iron Doors and Frames, and Mill Castings of every description, made to order.

THOMAS LOVEGROVE,
Machinist and Founder,
West Falls Avenue, below Pratt st., Baltimore.

Ray's Patent India Rubber Car Springs.

Savannah, Ga., May 22, 1850.

FOWLER M. RAY, Esq.,

Dear Sir: I have no hesitation in saying, after having used on our road your springs and Fuller's, that I consider yours decidedly the best in every particular, and in this opinion I am sustained by all our officers. Fuller's spring has a tendency to split, and also to chafe or abrade by the constant friction on the cast iron plates or disc: and in my opinion is not near so elastic as yours.

Your springs, which have been in use on our road for 12 or 15 months past, and in constant use under both passenger and freight cars, are to all appearances as elastic, sound and good, as when first put in use.

We are now building eigty-five new cars, of which for fifty-sets the springs have been ordered of you.

GEORGE A. ADAMS,
Master Carpenter,
Central Railroad and Banking Co. of Georgia.

—

Connecticut River Railroad Office,
Northampton, May 4, 1850.

E. CRANE, Esq.,

Dear Sir: It is now about two years since I first tried the experiment of using a set of Ray's India-rubber Springs upon one of our merchandise cars, and although the car has been in constant service since that time, I do not on examination find the slightest difference either in the thickness or elasticity of the material.

The same result has followed wherever we have applied them, either for wheel or draw springs on Engines, Tenders or Cars. At present we use no other; either in replacing old springs or building new cars—and I am perfectly satisfied that for economy durability, safety, and ease of motion, that Ray's India-rubber is the best article for Springs which has been presented to the public.

Yours respectfully, J. HUNT,
Supt. Connecticut River Railroad.

—

EDWARD CRANE, Esq.,

Dear Sir: Having applied to cars of the Boston and Worcester Railroad Corporation, Ray's Vulcanised Rubber Springs (where they have been in use for some two years last past), I have had occasion to observe their operation, and am free to say in answer to your inquiries, that they retain their *elasticity* perfectly during all changes of atmospheric temperature: and are in my opinion a most valuable acquisition to Railroad Cars—are not liable to derangement, as is the case with steel springs; while at the same time it costs less to apply them. Respectfully yours,

D. N. PICKERING,
Supt. Motive Power, Bost. & Wor. Railroad.
Boston, April 15th, 1850.

FARMERS! ATTENTION!!
John Mayher & Co's
NEW AGRICULTURAL WAREHOUSE AND SEED STORE,
197 WATER STREET, NEW YORK.

Where they have for Sale, the largest and most complete assortment of Farming Implements, ever offered for sale in this city—all of which they will sell 10 per cent. Cheaper than the same kind of Goods can be bought at any other house in the city. Our Goods are all Warranted to give satisfaction.

FARMERS wanting to purchase, will please call and examine our *Stock* before buying elsewhere.

Among our assortment may be found the Celebrated Highest Premium Eagle Ploughs! together with all the most approved Ploughs now in use.

Also,—Horse Powers, Threshing Machines, Fan Mills, Corn Shellers, Straw Cutters, Corn Mills, Seed Sowers, Churns, Ox Yokes, Ox Scrapers, Hay Rakes, Horse Rakes, Patent Chain Pump (that never freezes nor rusts), and other Pumps; in fact we have everything for Farming Purposes—together with Guano, Bone Dust and other Fertilizers.

JOHN MAYHER & CO.,
197 Water st., N. Y.

February 9, 1850.

N.B.—J. M. & Co. also continue their Old Stand, at 195 Front street, near Fulton Market.

RAILROAD CAR AND COACH TRIMMINGS.
Doremus & Nixon,
IMPORTERS AND FURNISHERS

HAVE FOR SALE

Plain Garnet Plush.	Fig. Garnet Plush (Butterfly pat.
" Crimson "	" Crimson " (Elegant.
" Scarlet "	" " " (Gen. Taylor.

BROCATELLES.

Crimson Silk Brocatelles. Gold and Maroon do.
Gold and Blue " " Brown "
Silk and Wool " of every color.

MOQUETTS,

Of elegant designs and colors.

GERMAN CLOTH FOR CAR LININGS.

The most beautiful goods ever shown in this country, and the subscribers are the sole agents for the sale of them.

Oil cloths Enamelled with Gold. } These goods can be
" " Silver. } furnished in any
Do. Silver ground velvet printed. } dimensions req'd.

CURLED HAIR

Of every description and quality.

JNO. W. A. STRICKLAND, Agent.
New York, 1850. 1y16

FOWLER M. RAY'S
Patent India-rubber Railroad CAR SPRING.

New York and Erie Railroad Shops.
Piermont, March 26, 1850.

This will certify that from practical experience in the use of Fowler M. Ray's India rubber Car Springs, I believe them to be far superior to any others now in use.

I have never known them to be affected by any change of temperature, as other Rubber Springs have been affected on this road.

I am at the present time repairing a Passenger Car that Mr. Ray and myself mounted with his springs about two years and eight months since.

The springs are at the present time as perfect, to all appearances, as when first applied to the car.

Respectfully yours,
HORACE B. GARDNER,
Foreman of the Car Shops.

—

Supt. Office N.Y. & H. R.R., }
New York, March 8, 1850. }

This is to certify that we have used the Rubber Springs manufactured by Mr. F. M. Ray for the past twenty months, "both for Passenger and Freight Car Springs and Bumpers, and of different sizes," and have in every case given entire satisfaction, and I consider them the best spring now in use

M. SLOAT, Supt.

—

Boston, March 5, 1850.

In answer to your enquiry about India-rubber Springs, I have to say that we have used them to a considerable extent on both freight and passenger cars, and also on several of our tenders; and I am very well satisfied that they answer all the purposes for which they are intended. I believe the India-rubber will soon supersede all other springs for cars and tenders. Yours truly, S. M. FELTON,
Supt. Fitchburg Railroad.

Office New Jersey Railroad Co., }
Jersey City, March 8, 1850. }

FOWLER M. RAY, Esq.,

Dear Sir: In answer to your enquiries respecting the operation of the Vulcanised Rubber Springs, purchased by our company from you some two years since, I reply that they are superior to any spring in use, (that I have either seen or heard of).

The improved form of your spring, consisting of a solid piece of vulcanised rubber with bands on the outside, is far superior to your first form, consisting of disks of rubber with metallic plates interposed.

The last named form was tried, if you recollect, at a much earlier period; and then was replaced by your last form.

I have no hesitation in saying that your springs have given entire satisfaction, and most cheerfully recommend them to railroad companies throughout the country for the following reasons:

1st. The cost is 30 per cent. less.

2d. Saving of weight on each car of 8 wheels from 700 to 800 lbs.

3d. Less care and attention is required, as they are not liable to get out of repair.

4th. A great saving is secured in the wear and tear of the cars and rails from their great elasticity.

5th. The freedom from noise.

6th. There is greater safety in case of accident, as they cannot be broken.

7th. The comfort of passengers is enhanced sufficiently to pay the expense, waiving all the other reasons that I have given.

Should this fail to satisfy any person enquiring, you are at liberty to refer to me, No. 150 Washington St., Jersey City. Yours respectfully,
T. L. SMITH, Supt.

—

New York, March 11, 1850.

I have used the Patent India-rubber Spring purchased of Mr. Ray, upon the cars of the New York and New Haven Railroad, and have found them efficient and economical; and when applied to the axles and draw springs, believe them to be quite equal to any in use. I have found a combination of these springs with a steel spring under the transom beam a very satisfactory arrangement, and am now using this plan in all new cars. Yours respectfully,
ROBERT SCHUYLER.

—

February 25, 1850.

From practical observation of the use of the India-rubber Car Springs, manufactured and sold by your company, we are entirely satisfied in their application, and do not hesitate to recommend them as elastic, durable, requiring no repairs for years, and retaining their consistency during all extremes of weather. We have applied them for the past two years, and consider them superior for all railroad purposes.

Yours truly,
OSGOOD BRADLEY, Car Builder, Worcester.
T. & C. WASON, do. Springfield.
DEAN, PACKARD & MILLS, do. do.
DAVENPORT & BRIDGES, do. Cambridgeport.

—

Office of the New Jersey Railroad Co., }
Jersey City, March 7, 1850. }

This is to certify that we have had Mr. F. M. Ray's India-rubber Springs in constant use under our cars, and as Bumper Springs for upwards of two years, and they have in every way given perfect satisfaction.

The present form of spring we deem far superior to the form of Disk, having used both forms, although we have none of those made in Disks at present in use.

We take pleasure in recommending these springs to all railroad companies.

J. P. JACKSON, Vice Prest.
New Jersey Railroad and Trans. Co.

—

Roxbury, February 28, 1850.

In compliance with your request, I take great pleasure in stating the result of my experience in the use of "Ray's Patented Vulcanised India-rubber Car and Engine Springs." We have used them nearly two years, and never had one fail in any way. The *cold weather* does not affect *them*, as it has *other* rubber springs we have used.

With sixteen years' experience as superintendent of machinery on the Boston and Providence railroad, I take pleasure in saying that your springs are the best we ever used, or I ever saw used elsewhere. We have 20 cars rigged with them, of which I can say that the springs are as good now as when first applied. I put 24 lbs. of the rubber under the forward end of one of our heaviest engines, taking off 250 lbs. of steel springs—it has been in use 18 months, and is in as good condition now as when first put under the engine.

Very respectfully yours,
GEO. S. GRIGGS,
Supt. of Machinery, Boston and Prov. R.R.

Fall River, February 2, 1850.

In answer to yours of the 20th ult. I would say that this company has for some 10 or 12 months past been using "Ray's India-rubber Springs." We have applied them to both passenger and freight cars with uniform success. They have invariably preserved their elasticity and consistency through all the extremes of weather; and we are now applying them whenever the steel spring fails. I am well satisfied that they are particularly adapted for railroad purposes.

Very respectfully yours,
GEO. HAVEN,
Supt. Fall River Railroad.

—

Jersey City, March 9, 1850.

This is to certify that the present form of Mr. F. M. Ray's India-rubber Car Spring I consider far superior to the form of Disk, having used both forms.

I take pleasure in recommending these springs to all railroad companies. DAVID H. BAKER,
Foreman of Car Shop of N.J. R.R. & Trans. Co.

—

Harlem R.R. Depot, }
New York, March 7, 1850. }

This is to certify that we have used Mr. F. M. Ray's India-rubber Springs for over eighteen months, and find them to be easy and durable, and recommend them to railroad companies as being superior to anything we have tried. J. M. SMART,
Foreman at 42d St. Depot.

—

Old Colony Railroad Office,
Boston, March 6, 1850.

EDWARD CRANE, Esq.,
President New England Car Co.,

Dear Sir: In compliance with your request I would state that the Old Colony Railroad Comp'y have had in use upon their road, India-rubber Springs furnished by your company, for more than eighteen months past, during which time they have been extensively used under Passenger and Freight Cars, Locomotive Tenders, and for Drawer and Buffing Springs, with the most perfect success. The elasticity and consistency of the Rubber has never been unfavorably affected by either extremes of heat or cold—and from the experience which we have had in the use of Rubber Springs, I think them well adapted for railroad purposes—and therefore we have for some months past used Rubber almost exclusively, in all places where springs are required.

Respectfully yours, etc.,
JAS. H. MOORE,
Supt. O. C. Road.

—

Troy, February 27, 1850.

We have been using your India-rubber Car Springs for nearly two years—and we take pleasure in saying that in our opinion the rubber has to a certain extent already, and may eventually entirely supersede all other Springs for Railroad Car purposes. We now use it entirely for Draw Springs and Bumpers, considering it better and lighter than steel.

During our two years' experience in the use of it, we have not known any to lose their elasticity, or fail in any way; and we cheerfully recommend the rubber for railroad car springs. Very respectfully,
EATON, GILBERT & CO.

Passenger Car Linings.

THE Advertiser continues to make to order the Enamelled Car Linings which have been so highly approved the last three years, and are now exclusively used by all the Northern Railroads. No pains are spared to get out new styles, and adapt them to the tastes of every consumer.

Orders addressed to CHARLES STODDER, No. 75 Kilby street, Boston, will have prompt attention.
March 23, 1850. 2m

India-rubber for Railroad Cos.

RUBBER SPRINGS—*Bearing and Buffer—Fuller's Patent—Hose* from 1 to 12 inches diameter. Suction Hose. *Steam Packing*—from 1-16 to 2 in. thick. *Rubber and Gutta Percha Bands.* These articles are all warranted to give satisfaction, made under Tyer & Helm's patent, issued January, 1849.—No lead used in the composition. Will stand much higher heat than that called "Goodyear's," and is in all respects better than any in use. Proprietors of railroads do not be overcharged by pretenders.

HORACE H. DAY,
Warehouse 23 Courtlandt street.
New York, May 21, 1849.

Spikes, Spikes, Spikes.

ANY person wishing a simple and effective Spike Machine, or a number of them, may be supplied by addressing J. W. FLACK,
March 6, 1850. Troy, N. Y.

MACHINERY.

Henry Burden's Patent Revolving Shingling Machine.

THE Subscriber having recently purchased the right of this machine for the United States, now offers to make transfers of the right to run said machine, or sell to those who may be desirous to purchase the right for one or more of the States.

This machine is now in successful operation in ten or twelve iron works in and about the vicinity of Pittsburgh, also at Phœnixville and Reading, Pa., Covington Iron Works, Md., Troy Rolling Mills, and Troy Iron and Nail Factory, Troy, N. Y., where it has give universal satisfaction.

Its advantages over the ordinary Forge Hammer are numerous: considerable saving in first cost; saving in power; the entire saving of shingler's, or hammerman's wages, as no attendance whatever is necessary, it being entirely self-acting; saving in time from the quantity of work done, as one machine is capable of working the iron from sixty puddling furnaces; saving of waste, as nothing but the scoria is thrown off, and that most effectually; saving of staffs, as none are used or required. The time required to furnish a bloom being only about six seconds, the scoria has no time to set, consequently is got rid of much easier than when allowed to congeal as under the hammer. The iron being discharged from the machine so hot, rolls better and is much easier on the rollers and machinery. The bars roll sounder, and are much better finished. The subscriber feels confident that persons who will examine for themselves the machinery in operation, will find it possesses more advantages than have been enumerated. For further particulars address the subscriber at Troy, N. Y. P. A. BURDEN.

Railroad Spikes and Wrought Iron Fastenings.

THE TROY IRON AND NAIL FACTORY, exclusive owner of all Henry Burden's Patented Machinery *for making Spikes*, have facilities for manufacturing large quantities upon short notice, and of a quality unsurpassed.

Wrought Iron Chairs, Clamps, Keys and Bolts for Railroad fastenings, also made to order. A full assortment of Ship and Boat Spikes always on hand.

All orders addressed to the Agent at the Factory will receive immediate attention.

P. A. BURDEN, *Agent*,
Troy Iron and Nail Factory, Troy, N. Y.

CHILLED RAILROAD WHEELS.—THE UNdersigned are now prepared to manufacture their Improved Corrugated Car Wheels, or Wheels with any form of spokes or discs, by a new process which prevents all strain on the metal, such as is produced in all other chilled wheels, by the manner of casting and cooling. By this new method of manufacture, the hubs of all kinds of wheels may be made whole—that is, without dividing them into sections—thus rendering the expense of banding unnecessary; and the wheels subjected to this process will be much stronger than those of the same size and weight, when made in the ordinary way.

A. WHITNEY & SON,
Willow St., below 13th,
Philadelphia, Pa.

Brown's Old Established SCALE WARE HOUSE,

NO. 234 WATER ST., NEW YORK.

THE Subscriber, Practical Manufacturer of Scales of every description, respectfully asks the attention of Railroad Companies to his Improved Wrought Iron Railroad Track and Depot Scales which for strength, durability, accuracy, convenience in weighing, and beauty of workmanship, are not surpassed by any others in this country.

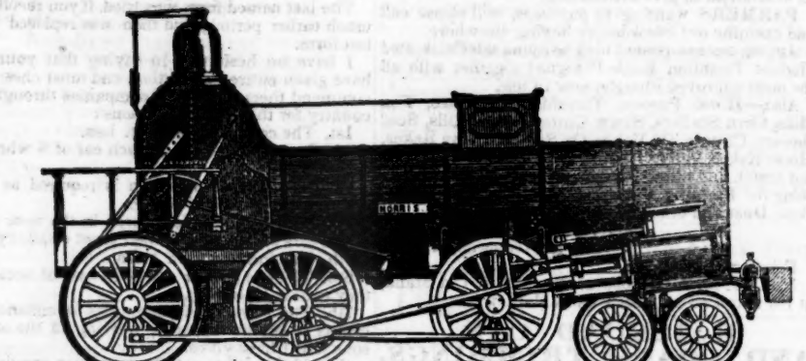
He is aware that this is rather a bold assertion for him to make, yet he can say with confidence that they have but to be tried to give them precedence over all others. J. L. BROWN.

☞ Bank Scales made to order, and all Scales of his make Warranted in every particular.

References given if required

NORRIS' LOCOMOTIVE WORKS.

BUSHHILL, SCHUYLKILL SIXTH-ST., PHILADELPHIA,



THE UNDERSIGNED Manufacture to order Locomotive Steam Engines of any plan or size.

Their shops being enlarged, and their arrangements considerably extended to facilitate the speedy execution of work in this branch, they can offer to Railway Companies unusual advantages for prompt delivery of Machinery of superior workmanship and finish.

Connected with the Locomotive business, they are also prepared to furnish, at short notice, Chilled Wheels for Cars of superior quality.

Wrought Iron Tyres made of any required size—the exact diameter of the Wheel Centre, being given, the Tires are made to fit on same without the necessity of turning out inside.

Iron and Brass castings, Axles, etc., fitted up complete with Trucks or otherwise.

NORRIS, BROTHERS

PATENT MACHINE MADE HORSE-SHOES.

THE Troy Iron and Nail Factory have always on hand a general asssortment of Horse Shoes, made from Refined American Iron.

Four sizes being made, it will be well for those ordering to remember that the size of the shoe increases as the numbers—No. 1 being the smallest.

P. A. BURDEN, *Agent*,
Troy Iron and Nail Factory, Troy, N. Y.

Etna Safety Fuse.

THIS superior article for igniting the charge in wet or dry blasting, made with DUPONT'S best powder, is kept for sale at the office and depot of

REYNOLDS & BROTHER,

☞ *Sole Manufacturers,* ☜

No. 85 Liberty St.
NEW YORK.

And in the principal cities and towns in the U. States.

☞ The Premium of the AMERICAN INSTITUTE was awarded to the *Etna Safety Fuse* at the late Fair held in this city.

November 3, 1849. 1y

COLUMBUS, OHIO,

Railroad Car Manufactory.

RIDGWAYS & KIMBALL,

HAVE established at this central point, the manufacture of Passenger, Freight, Gravel and Hand Cars for Railroads, and assure all Western Railroad Companies that it will be their constant aim to procure the best materials and workmen, and to turn out the best kind of work at fair prices. Specimens may be seen on the Columbus and Xenia Railroad. The patronage of Railroad Companies is respectfully solicited. 1y8

To Inventors and Patentees.

OWEN G WARREN, ARCHITECT, Has had many years' experience as Agent for obtaining Patents, both in this country and Europe, and will transact such business promptly and reasonably. Persons at a distance can have their business done by correspondence—without the necessity of visiting this city or Washington. Office No. 94 Merchants Exchange, Wall st., corner of Hanover st., up stairs. 1y3

MR. HALE:—"The New England Car Co., having been engaged for the last six months in introducing the Vulcanized India-rubber Car Spaings upon the different railroads in this and other states, and having in particular introduced it upon the Boston and Worcester railroad with perfect success, were much gratified to find, by your paper of this morning, that the article had given satisfaction to the president of that corporation, and the terms of just commendation in which you were pleased to speak of it. But their gratification was scarcely equalled by their surprise, when, or arriving at the close of your paragraph, they found the results of all their labors attributed to a foreign source, with which the New England Car Co. has no connection. The material used on the Boston and Worcester railroad, and all the other railroads in this country, where any preparation of India-rubber has been successfully applied, is entirely an American invention, patented in the year 1844 to Charles Goodyear, of New Haven, Conn., and the application of it to this purpose and the form in which it is applied are the invention of F. M. Ray of New York. The only material now in use, and so far as has yet appeared, the only preparation of India rubber capable of answering the purpose, has been furnished under these patents by the New England Car Company, manufactured under the immediate inspection of their own agent. If any other should be produced, the right to use it would depend upon the question of its interference with Mr. Goodyear's patent. The New England Car Company have their place of business in this city at No. 99 State street, and are prepared to answer all orders for the Vulcanised India rubber Car Springs, of the same quality and of the same manufacture as those which they have already placed on your road, and most fo the other roads terminating in this city."

And yet Mr. Knevitt is using these experiments made upon the Springs of the Car Company to induce the public to purchase his springs, and is attempting to impose upon them the belief that the springs used were furnished by him! We ask whether such a course is honorable, or entitles his statements to much consideration from the public.

The above Springs are for sale 98 Broadway, New York, and 99 State street, Boston.

EDWARD CRANE Agent, Boston.
F. M. RAY, Agent, New York.

Boston, May 8, 1849.

STABILITY—SECURITY—PERPETUITY.

Mutual Life Insurance Co. of New York.

No. 35 WALL STREET.

A MILLION OF DOLLARS

Securely invested in Bonds and Mortgages on real estate in this city and Brooklyn, and stocks of the State and City of New York and United States Government.

The company declared a dividend of profits of fifty-two per cent. on all existing policies on the 31st of January, 1848.

All the Profits are Divided Among the Insured.

Persons may effect insurance on their own lives and the lives of others.

A married woman can insure the life of her husband, the benefits of which are secured by law for the exclusive use of herself or children.

Clergymen and all others dependent upon salaries or their daily earnings are specially invited to avail themselves of a resource whereby their surviving families may be secured from the evils of penury.

Pamphlets explanatory of the principles of Mutual Life Insurance, and illustrating its advantages, with forms of application, may be obtained at the office of the company, 35 Wall street, or of any of its agents.

TRUSTEES.

Jos. B. Collins,	Abraham Bininger,
Wm. J. Hyslop.	Alfred Edwards,
R. H. McCurdy,	Wm. Betts,
Fred. S. Winston,	Joseph Blunt,
C. W. Faber,	Isaac G. Pearson,
John P. Yelverton,	Henry Wells,
Theo. Sedgwick,	Wm. Moore,
Stacy B. Collins,	George R. Clark,
John H. Swift,	Jona. Miller,
John Wadsworth,	David A. Comstock,
S. M. Cornell,	Robert Schuyler,
Gouv. M. Wilkins,	James Chambers,
John V. L. Pruyn,	Joseph Tuckerman,
Jas. S. Wadsworth,	Moses H. Grinnell,
Charles Ely,	Wm. J Banker,
John C. Cruger,	John M. Stuart,
Charles King,	Francis S. Lathrop,
Alfred Pell,	Nathaniel Hayden.

JOSEPH. B. COLLINS, President.
ISAAC ABBATT, Secretary. 3m9

Hydraulic Cement.

KINGSTON LIME AND CEMENT CO.
OFFICE
271 PEARL-ST.
N. Y.

HYDRAULIC CEMENT, OF BEST QUALITY, manufactured at their works, for sale in lots to suit purchasers.

Also, Ground Lime, a superior article for Builders.

ISAAC FRYER, Sec'y.

January 19, 1850. 1v

Engine and Car Works, PORTLAND, MAINE.

THE PORTLAND COMPANY, Incorporated August 8th, 1846, with a capital of $250,000, have erected their extensive Works upon the deep water of Portland Harbor, and receive and transport, to and from their works direct, to and from vessels of any class.

They now manufacture to order, and deliver upon the Railroads running in each direction from the city, or on shipboard as wanted, Locomotive, Stationary, or Steam Boat Engines; Passenger, Mail, Freight, Earth and Hand Cars; Railway Frogs, Switches, Chairs and Castings; and every other description of Machinery.

HORACE FELTON, Superintendent.

JAMES C. CHURCHILL, General Agent and Clerk.

RAILROADS.

EASTERN RAILROAD.

SUMMER ARRANGEMENT.

On and after Monday, June 17th, 1850, trains will leave Boston daily (Sundays excepted);

For Lynn, 7, 9½, 11 a.m., 12 m., 2½, 4½, 5, 6, 7 p.m.
Salem, 7, 9½, 11, a.m., 12 m., 2½, 3, 4½, 6, 7 pm.
Manchester and Gloucester, 9½ a.m., 3, 6 p.m.
Marblehead, 7, 9½, 12 a.m. 2½, 4½, 6, 7 p.m.
Ipswich, 7, 11, 12 a.m., 2½, 4½, 7 p.m.
Newburyport, 7, 11, 12 a.m., 2½ 4½, 7 p.m.
Portsmouth, 7, 11 am., 4½, pm.
Portland, Me., 7, 11 am., 4½, pm.

And for Boston,

From Portland, 5, 10½ am., 5 pm.
Portsmouth, 7½,* am., 1, 7½*, pm.
Newburyport, 6½, 8*, 11½ am., 1½*, 5, 8 pm.
Ipswich 7·40, 8·35, 11·42 a.m. 2·20, 5·22, 8½.
Gloucester, 7½, am., 1½, 8 pm.
Manchester, 7 am., 2 pm.,
Salem, 6½, 7½*, 8½*, 9½, 10½ am., 12½*, 2½* 3,* 6*, 9* pm.
Lynn, 6½, 7½*, 8½*, 9½, 10½ am., 12½*, 2½*, 3½ 6½*, 9½* pm.

** Or on their arrival from the East.*

Freight trains each way daily. Office 17 Merchants' Row, Boston.

JOHN KINSMAN, Superintendent.

ALBANY AND BUFFALO RAILROADS.—Four Trains daily, Sundays excepted, viz: Leave Albany, 6 a.m., 9 a.m., 2 p.m., 7 p.m. Reach Buffalo, 15 hours, 18 hours, 23 hours, 18 hours. Arrive from Buffalo, 7 p.m., 2½ a.m., 12½ m., 3½ p.m.

Passengers by the *Express Train* reach Buffalo from New York, and New York from Buffalo, in 24 hours. The Isaac Newton and Oregon connect at Albany with this Train. Baggage cars, with careful baggage masters, run through with all the trains.

For Schenectady, Saratoga Springs & Whitehall, Leave Albany at 7 a.m. and 2 p.m. For Schenectady only at 6, 7 and 9 a.m. and 12½, 2 and 7 p.m. For Erie Canal packets at 7 a.m. and 7 p.m. By Plank Road from Schenectady to Saratoga at all hours by stages, etc.

The *Eastern Trains* leave Albany at 7 a.m. and 3 p.m. The wagons of the company take baggage *free* between railroads and steamboats at Albany.

E. FOSTER, Jr., Sec'y
Albany and Schenectady Railroad Co.
Albany, August, 1849.

BOSTON AND MAINE RAILROAD.

Summer Arrangement, 1850.

Outward Trains from Boston

For Portland at 7, 11, am.. and 4½ pm.
For Great Falls at 7, 11, am., 4½ pm.
For Haverhill at 7, 9, 11 am., 2½, 4½, 6½, pm.
For Lawrence (South Side,) 7, 11 am., 2½, 4½, pm.
" (North ") 7½, 9, a.m. 12m., 5, 6½, p.m.
For Reading 7, 9, 11 am. 12m. 2½, 4½, 5, 6½, 7½, 9½ pm.
The Station in Boston is on Haymarket Square.

THOS. S. WILLIAMS, Super't.

July 1, 1850.

NEW YORK AND HARLEM RAILROAD.

NEW ARRANGEMENT.

On and after Wednesday, October 17th, 1849, the Cars will run as follows, (Sundays excepted) until further notice:

Trains will leave the City Hall, New York, for—

Harlem and Morrisania at 6½, 8, 10, 11, 12 am., 2, 3½, 4, 5, 6½ pm.
New Village, at 8½, 10, 12 am., 3½, 5, 6½ pm.
Fordham and Williams' Bridge, at 8½, 10, 12 am., 2½ 3½, 5, 6½ pm.
Hunt's Bridge, Underhill's and Hart's Corners, at 8½, 10 am., 3½, 5 pm.
Tuckahoe and White Plains, at 8½, 10 am., 2½, 3½, 5 pm.
Pleasantville, New Castle, Bedford, Mechanicsville, Purdy's, Croton Falls, and intermediate stations, on signal, 8½ am., 2½, 3½ pm.
Brewster's, Towner's, Patterson, Paulding's, South Dover, Dover Furnace, and Dover Plains, 8½ am., 2½ pm.

NOTICE—Passengers are reminded of the great danger of standing upon the platform of the cars, and hereby notified that the practice is contrary to the rules of the Company, and that they do not admit any responsibility for injury sustained by any passenger upon the platforms, in case of accident.

Returning to New York will leave

Harlem and Morrisiana at 6 08, 7½, 8 37, 9, 10 6, 12 am., 1 43, 3 07, 3½, 5, 5 47 pm.
New Village, at 5 58, 8 27, 9 56 am., 1 33, 2 57, 5 36 pm.
Fordham and William's Bridge at 5½, 8 14, 9 43, 10 57 am., 1 20, 2 44, 5 24 pm.
Hunt's Bridge at 8 04, 9 33 am., 2 34, 5 16 pm. On signal.
Underhill's, at 7 56, 9 23 a.m., 2 26, 5 10 p.m. On signal.
Tuckahoe at 7 53, 9 18, 10 40 am., 2 23, 5 08 pm.
Hart's Corners at 7 38, 9 03 am., 2 08, 4 54 pm.—On signal.
White Plains at 7½, 8 55, 10 20 am., 2, 4 47 pm.
Davis' Brook at 8 40, 10 11 am., On signal. 4 39 pm. On signal.
Unionville, 8 27, 10 11 am. On signal. 4 29 pm.—On signal.
Pleasantville at 8 20, 9 56 am., 4 24 pm.
Champaqua, at 8 10, 9 50 am. On signal. 4 18 pm. On signal.
New Castle, at 7 56, 9 38 am.. 4 07 pm.
Bedford at 7 46, 9 32 am., 4 02 pm.
Mechanicsville at 7 36, 9 22 am., 3 52 pm.
Golden's Bridge, 7 28, 9 17 am. On signal, 3 47 p m. On signal.
Purdy's at 7 20, 9 09 am., 3 39 pm.
Croton Falls, at 7½, 9 04 am.,3 34 pm.
Brewster's, at 8 50 am., 3 20 pm.
Towner's, at 8 35 am., 3 05 pm.
Paterson, at 8 27 am., 2 57 pm.
Paulding's, at 8 17 am., 2 47 pm.
South Dover, 8 02 am., 2 32 pm.
Dover Furnace, 7 55 am., 2 25 pm.
Dover Plains, at 7 45 am., 2 15 pm.

The trains for Harlem and Morrisiana leaving City Hall at 6½, 8, 10, 11, 12, 2, 4 and 6½, returning from Morrisiana and Harlem at 6 08, 7½, 9, 12, 1 43, 3 07, 3½ and 5 o'clock, will land and receive passengers at 27th 42d, 51st, 61st, 79th, 86th, 109th, 115th, 125th and 132d streets.

The Dover Plains train from New York at 2½ pm., returning leaving Dover Plains at 7½ am., will not stop between White Plains and New York, (except at Tuckahoe, Williams' Bridge and Fordham,) unless to leave passengers coming from above Croton Falls.

A car will precede each train ten minutes to take up passengers in the city. The last car will not stop, except at Broome st. and 27th street.

Freight Trains leave New York at 1 o'clock pm.—Returning, leaves Dover Plains at 12 o'clock m.

For Sunday Aarrangements, see hand bills.

M. SLOAT, Sup't.

NEW YORK & ERIE RAILROAD.

Summer Arrangement, 1850.

Steamboats leave daily, Sundays excepted, from the pier foot Duane st., at 6½ a.m., and 6½ p.m., for Piermont, there connecting with the new and comfortable broad gauge cars of this road, running to Jefferson at the head of Seneca Lake in 12 hours, where passengers take the new and splendid steamer Benj. Loder for for Geneva. At Geneva they take any o the trains of the central line for Rochester, Buffalo, and the west.

Breakfast and supper on board the steamboats at each end.

Express freight trains daily over the whole road in 24 hours.

FARES.

Between New York and Buffalo,		$9 85
"	" Geneva,	6 00
"	" (second class,	4 50

CHAS. MINOT, Supt.

August 1st, 1850.

NORTHERN RAILROAD, *NEW YORK.*

CARS run between Rouses Point and Chateaugay daily, Sundays excepted, as follows:

Leave Rouses Point at . . 3½ A.M.
Leave Chateaugay at . . 6½ P.M.

On the arrival of the cars at Chatauguy, stages are in readiness to take the passengers to Ogdensburg, where they arrive the same day.

Passengers leave Ogdensburg in the morning by stage, and take the evening train from Chataugay to Rouses Point, where they go immediately on board the steamboats which run north and south on Lake Champlain.

Passengers leaving New York in the evening by the way of Whitehall, will arrive at Rouses Point the next night, and the next morning pass directly from the boat to the cars, and arrive at Ogdensburg the same day. CHARLES L. SCHLATTER, Supt.

WESTERN AND ATLANTIC RAILROAD,

FROM ATLANTA, GA., TO CHATTANOOGA, TENN. 140 Miles.

PASSENGER SCHEDULE.

Leave Chattanooga daily, Sundays excepted, at 8½ a.m.
Arrive at Kingston . . . by 12 m.
" Dalton . . . by 3 p.m.
" Chattanooga . . . by 6 "
Leave Chattanooga daily, Sundays excepted, at 7 a.m.
Arrive at Dalton . . . by 9½ "
" Kingston . . . by 12 m.
" Atlanta . . . by 4 p.m.

The fare is now permanently reduced to *three* cents per mile for way as well as through Passengers; children and servants *two* cents per mile.

There are two Railroad routes from Atlanta to the Seaboard, viz: one by the Georgia Railroad to Augusta, and thence to Charleston by the South Carolina Railroad; the other by the Macon and Western Railroad to Macon, and thence to Savannah by the Central Railroad.

At Kingston, 60 miles north of Atlanta, the Rome Railroad branches off to Rome on the Coosa river, which admits of steamboat navigation as far down as Greensport in Ala. Mail stages are in operation from Rome leading towards Tuscaloosa, Ala., Columbus, Miss., Memphis, Tenn., etc.

At Dalton, 100 miles north of Atlanta, a line of stages branches off to Knoxville, Tenn., which will be superseded by the East Tennessee and Georgia Railroad as rapidly as the same is completed.

At Chattanooga a number of steamboats are in successful operation on the Tennessee river, and from that terminus of the road stages run to Nashville, which will be superseded by the Nashville and Chattanooga Railroad as rapidly as the same is completed.

WM. D. FULLTON, Supt. Transp.
Transportation W. & A. R. R., }
Atlanta, March, 1850. }

GREAT NORTHERN & SOUTHERN MAIL ROUTE.

From New York to Charleston, S. C. daily, via *Philadelphia, Baltimore, Washington City, Richmond, Petersburg, Weldon and Wilmington, N. C.*

Travellers by this route, leaving New York at 4½ p. m., Philadelphia at 10 p.m., and Baltimore at 6 a.m., proceed without delay at any point on the route, arriving at Richmond, Va., in a day, and at Charleston, S. C., in two and half days from New York.

Through tickets from New York to Charleston, $20 00
" " Baltimore to Richmond, 7 00
" " " Petersburg, 7 50

For tickets to Richmond and Petersburg, or further information, apply at the *Southern Ticket Office, adjoining the Washington Railroad Ticket Office, Pratt Street, Baltimore.* STOCKTON & FALLS.

LITTLE MIAMI RAILROAD.—SUMMER ARRANGEMENT.

Cincinnati and Sandusky.

FIRST Passenger Train leaves Depot on East Front street, at 5 o'clock 10 minutes A. M. stops for breakfast at Morrow, and arrives at Springfield at 11 10 A M. Leaves Springfield for Sandusky at 11 50 A. M.

Second Passenger Train leaves Depot 3 P. M. arrives at Springfield at 9 P.M. Passengers take tea at Springfield, and leaves for Sandusky at 9½ P. M.

RETURNING—First Train leaves Springfield at 4 A. M. Stop for breakfast at Xenia, and arrives at Cincinnati at 10 15 A. M.

Second Train leaves Springfield at 2½ P. M. Stop for tea at Morrow, and arrives at cincinnati, at 8½ P. M.

Passengers taking the Morning Train arrive at Sandusky at 9 P. M. Those taking the Afternoon Train arrive at 7½ A. M. next morning, and proceed directly on in the boats.

Passengers for columbus, Zanesville, Wheeling, and intermediate towns, should take the 5, 10 A. M., Train.

The Ohi Stage Company are running the following Lines in connection with the Trains:

A Daily Daylight Line to Columbus from Springfield in connection with the Morning Train from Cincinnati. Also, Daily Lines to Columbus, from Xenia and Springfield, connecting with the 3 o'clock pm. train from Cincinnati.

Fare from Cincinnati to	Xenia . .	$1 90
" "	Springfield . .	2 50
" "	Sandusky city .	6 50
" "	Buffalo . .	10 00
" "	Columbus . .	4 50

For other information and through tickets, apply at the Ticket Office on Broadway, near Front-st., Cincinnati.

W. H. CLEMENT, Superintendent.

☞ The Company will not be responsible for Baggage exceeding 50 dollars in value, unless the same is returned to the Conductors or Agent, and freight paid at the rate of a passage for every 500 dollars in value above that amount.

PHILADELPHIA, WILMINGTON, & BALTIMORE RAILROAD.

Summer Arrangement.
April 1st, 1849.—Fare $3.

Leave Philadelphia 8½ am., and 10 pm.
Leave Baltimore 9 am, and 8 pm.
Sunday—Leave Philadelphia at 10 pm.
" Baltimore at 8 pm.
Trains stop at way stations.

Charleston, S. C.

Through tickets Philadelphia to Charleston, $20.

Pittsburg and Wheeling.

Through ticket, Philadelphia to Pittsburg, $12.
" " Wheeling, 13.
Through tickets sold at Philadelphia office only.

Wilmington Accommodation.

Leave Philadelphia at 12 m. 4 and 7 pm.
Leave Wilmington at 7½ am., 4½ and 7 pm.

Newcastle Line.

Leave Philadelphia at 2½ pm.—Baltimore at 1½ pm
Fare $3.—Second class, $2.
N.B.—Extra baggage charged for.

I. R TRIMBLE, Gen. Supt.

BALTIMORE AND SUSQUEHANNA RAILROAD.—Reduction of Fare.

Morning and Afternoon Trains between Baltimore and York.—The Passenger Trains run daily, except Sundays, as follows:

Leave Baltimore at - - -	9 am. and 3½ pm.
Arrive at - - -	9 am. and 6½ pm.
Leave York at - - -	5 am. and 3 pm.
Arrive at - - - -	12½ pm. & 8 pm.
Leave York for Columbia at	1½ pm. & 8 am.
Leave Columbia for York at	8 am. & 2 pm.

Fare:

Fare to York - - - -	$1 50
" Wrightsville - - - -	2 00
" Columbia - - - -	2 12½

Way points in proportion.

PITTSBURG, GETTYSBURG, AND HARRISBURG.

Through tickets to Pittsburg via stage to Harrisburg - - - - - -	$9
Or via Lancaster by railroad - - -	10
Through tickets to Harrisbnrg, or Gettysburg -	3

In connection with the afternoon train at 3½ o'clock, a horse car is run to Green Spring and Owing's Mill, arriving at the Mills at - - 5½ pm.
Returning, leaves Owing's Mills at - - 7 am.

D. C. H. BORDLEY, Sup't.
31 1y Ticket Office, 63 North st.

PHILADELPHIA & READING RAILROAD

Passenger Train Arrangement for 1850.

A Passenger Train will leave Philadelphia and Pottsville daily, except Sundays, at 9 o'clock a.m.

The Train from Philadelphia arrives at Reading at 12 18 m.

The Train from Pottsville arrives at Reading at 10 43 a.m.

Fares.	Miles.	No.1.	No.2.
Between Philad. and Pottsville,	92	$3·50	and $3·00
" " Reading,	58	2·25	1·90
" Pottsville "	34	1·40	1·20

Five minutes allowed at Reading, and three at other way stations.

Passenger Depot in Philadelphia corner of Broad and Vine streets. 8tf.

BALTIMORE AND OHIO RAILROAD AND WASHINGTON BRANCH.

On and after January 1, 1850, Passenger Trains will run as follows:

Leave Baltimore for Ellicott's Mills, Frederick, Harper's Ferry, Martinsburg, Hancock and Cumberland, every morning at 7½ o'clock. This line carries the Great Mail, and connects with Post Coaches at Cumberland, for Wheeling and Pittsburg, over the National Road. Also with the Winchester Trains, at Harper's Ferry. N.B.—Passengers for Pittsburg take the steamers of the Monongahela slack water navigation at *Brownsville*, only 76 miles from Cumberland.

Leave Baltimore for Ellicott's Mills, Frederick and Harper's Ferry, daily, except Sunday, at 4½ p.m.

Leave Baltimore for Washington City, daily, at 6 a.m. and 5 p.m.—daily, except Sunday, at 9 a.m. The early train connects with the Great Southern Line, via Fredericksburg and Richmond, to Charleston.

Leave Cumberland for Baltimore, etc., at 8½ a. m., daily, connecting with the train from Winchester at Harper's Ferry—with the Evening Train to Washington City, at the Relay House—and with the Evening Train to Philadelphia, at Baltimore. Time for arriving at Baltimore, 5½ p.m.

Leave Harper's Ferry for Baltimore, daily, except Sunday, at 7½ a. m—taking in Passengers who leave Frederick at 8½ a.m.

Leave Washington for Baltimore, daily, at 6 a.m. & 5½ p.m., and *daily, except Sunday*, at 9½ a. m. The early train connects at the Relay House with the morning line to Cumberland and the West, and at Baltimore with the day line to Philadelphia and New York.

Through tickets are sold at *Philadelphia and Baltimore* for Pittsburgh and Wheeling, and at *Philadelphia and New York* for Charleston, S. C., at the following

RATES OF FARE.

	To Pittsburg. In winter.	Summer.	Wheeling. Win.	Sum.	Charleston.
From Philadelphia,	$13	$12	$14	$13	$20
" Baltimore,	11	10	12	11	
" New York, . . .					20

Passengers leaving New York not later than the afternoon line via Newark, etc., reach Baltimore in season to take the next morning's lines to the South and West.

Passengers leaving Cumberland in the morning and Washington in the evening lines, reach Baltimore in season to proceed to Philadelphia by the evening train at 8 p. m.—so as to reach New York before noon the next day.

An Emigrant line by burthen cars, leaves Baltimore every morning, except Sundays, at 4 o'clock—connecting with a line of the previous day from N. York—and at Cumberland with a wagon line to Pittsburg or Brownsville and Wheeling. Fare by this line:

From New York to Pittsburg,	$8 00
" Philadelphia "	6 50
" Baltimore "	5 00

By order, J. T. ENGLAND, Agent.

SOUTH CAROLINA RAILROAD.—A PASSENGER TRAIN

runs daily from Charleston, on the arrival of the boats from Wilmington, N. C., in connection with trains on the Georgia, and Western and Atlantic Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tuscumbia Railroad in N. Alabama.

Fare through from Charleston to Montgomery daily - - - - - -	$26 50
Fare through from Charleston to Huntsville, Decatur and Tuscumbia - - -	22 00

The South Carolina Railroad Co. engage to receive merchandize consigned to their order, and to forward the same to any point on their road; and to the different stations on the Georgia and Western and Atlantic Railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad.

JOHN KING, Jr., Agent.

FAIRBANKS' RAILROAD SCALES.—THE subscribers are prepared to construct at short notice, *Railroad* and *Depot Scales*, of any desired length and capacity. Their long experience as manufacturers—their improvements in the construction of the various modifications, having reference to strength, durability, retention of adjustment, accuracy of weight and dispatch in weighing—and the long and severe tests to which their scales have been subjected—combine to ensure for these scales the universal confidence of the public.

No other scales are so extensively used upon railroads, either in the United States or Great Britain;—and the managers refer with confidence to the following in the United States.

Eastern Railroad.	Boston & Maine Railroad.
Providence Railroad.	Providence and Wor. Road.
Western Railroad.	Concord Railroad.
Old Colony Railroad.	Fitchburg Railroad.
Schenectady Railroad.	Syracuse and Utica Road.
Balt. and Ohio Railroad.	Baltimore and Susq. Road.
Phila. & Reading Road.	Schuylkill Valley Road.
Central (Ga.) Railroad.	Macon and Western Road.

New York and Erie Railroad.

And other principal Railroads in the Western, Middle and Southern States.

E. & T. FAIRBANKS & CO.
St. Johnsbury, Vt.

Agents, { FAIRBANKS & Co., 89 Water St., N. York. / A. B. NORRIS, 196 Market St. Philadelphia.

April 22, 1849. 1y*17

NOTICE TO
Superintendents of Railroads.

TYLER'S PATENT SAFETY SWITCH.—The undersigned would respectfully call their attention to his Patent Safety Switch, which from long trial and late severe tests has proved itself perfectly reliable for the purpose for which it was intended. It is designed to prevent the train from running off when the switch is set to the wrong track by design or accident. The single rail or gate switch is established as the best and safest switch for the ordinary purpose of shifting cars from one track to another, but it is liable to the serious evil of having one track open or broken when connected with the other. My improvement entirely removes this evil, and while it accomplishes this important office, leaves the switch in its original simplicity and perfection of a plain unbroken rail, connecting one track with the other ready for use.

The following decision of the Commissioner of Patents is respectfully submitted to Railroad Engineers, superintendents, and all others interested in the subject.

P. B. TYLER.

(COPY.)

UNITED STATES PATENT OFFICE,
Washington City, D.C., April 28th, 1846.

SIR: You are hereby informed that in the case of the interference between your claims and those of Gustavus A. Nicolls, for improvements in safety switches—upon which a hearing was appointed to take place on the 3d Monday in March, 1846, the question of priority of invention has been decided in your favor. Inclosed is a copy of the decision. The testimony in the case is now open to the inspection of those concerned.

Yours respectfully, EDMUND BURKE,
Commissioner of Patents.

To Philos B. Tyler.

Any further information may be obtained by addressing P. B. TYLER, Springfield, Mass., or JOHN PENDLETON, Agent, 149 Hudson St., New York.

NORRIS' LOCOMOTIVE WORKS,
SCHENECTADY, N. Y.

THESE Works are in full operation in Manufacturing to order, Locomotive Steam Engines & Tenders, of the best principle and construction of material, using wrought iron heavy frames with pedestals welded thereto, and all parts of the engine made of the best wrought iron, except cylinders, pumps and boxes—obtaining greater durability, and carrying less weight over the road, than engines constructed of cast iron.

Wrought Iron Tires made any required size, and Tire Bars bent and welded with dispatch.

Chilled Wheels for Cars, Tucks and Tenders, made from the toughest iron.

Driving and Tender and Car Wheels fitted to Axles with Brass Boxes and Springs, and Railroad Machinery generally. Manufactured and for sale by

April 11, 1849. E. S. NORRIS.

CORROSIVE SUBLIMATE.

THIS article now extensively used for the preservation of timber, is manufactured and for sale by POWERS & WEIGHTMAN, manufacturing Chemists, Philadelphia.

Jan. 20, 1849.

CENTRAL RAILROAD FROM SAVANNAH TO MACON, (Ga.) 190¼ miles.

Passenger Trains leave Savannah and Macon daily at 7 a.m.
Passenger trains arrive daily at Savannah, 6 15 p.m.
" " " Macon, 6 45 p.m.

This road, in connection with the Macon and Western road from Macon to Atlanta, and the Western and Atlantic road from Atlanta to Dalton, now forms a continuous line of 391¼ miles in length* from Savannah to Dalton, Murray county, Ga. and with the Memphis Branch railroad, and Stages connect with the following places:

Tickets from Savannah to Macon,		$5 75
" " "	Atlanta,	9 50
" " "	Augusta,	6 50
" " "	Columbus,	15 00
" " "	Opelika,†	17 00
" " "	Jacksonville, Ala.,	20 00
" " "	Talladega, Huntsville Decatur, Ala.,	22 00
" " "	Tuscumbia, Ala.,	22 50
" " "	Tuscaloosa, Ala.,	
" " "	Columbus, Miss., Aberdeen, "	28 00
" " "	Holly Springs	
" " "	Nashville, Tenn. Murphreesboro'	25 00
" " "	Columbia, do.,	
" " "	Memphis, do.,	30 00

An extra Passenger Train leaves Savannah on Saturdays, after the arrival of the Steam-ships from New York, for Macon, and connects with the Macon and Western railroad; and on Tuesdays, after the arrival of the Macon and Western cars, an extra Passenger Train leaves Macon to connect with the Steam ships for New York.

Stages for Tallahasse and intermediate places connect with the road at Macon, Mondays, Wednesdays, and Fridays, and with Milledgeville at Gordon daily.

Passengers for Montgomery, Mobile and New Orleans take stage for Opelika from Barnesville through Columbus, a distance of 97 miles, or from Griffin thro' West Point, a distance ot 93 miles.

* The Western and Atlantic railroad will soon be completed between Dalton and Chattanooga, a distance of 423¼ miles from Savannah, of which due notice will be given.

† Head of the West Point and Montgomery railroad, on which the fare to Montgomery is about $2.

RATES OF FREIGHT FOR MERCHANDIZE GENERALLY, FROM SAVANNAH TO MACON.

Measurement Goods.—Boxes of hats, bonnets, furniture, shoes, saddlery, dry-goods, and other measurement goods, per cubic foot - - 13 cents.
Crockery Ware, in crates, boxes or hhds, per cubic foot. - - - - - 10 "
Goods by Weight, 1st class.—Boxes of glass, paints, drugs & confectionary, per 100 lbs., 50 "
2d class—Sugar, coffee, rope, butter, cheese, lard, tobacco, leather, hides, copper, sheet and hoop iron, tin, hard and hollow ware, rice, boxes soap and candles, bagging, and other heavy articles not enumerated below, per 100 lbs., - - - - - 45 "
3d class—Flour, bacon, liquors, pork, beef, fish, tallow and beeswax, per 100 lbs., 40 "
4th class—Mill-gearing, pig and bar iron, grind and millstones, nails, spikes and coal, 100 lb. 30 "
Barrels of beets, bread, crackers, potatoes, ice, fruit, oysters, onions, and all light bbls, each, 75 "
Oil and molasses per hhd., (smaller casks in proportion) - - - $6 00 "
Salt per sack not exceeding 4 bushels, - 50 "

☞ Goods consigned to Thos. S. Wayne, Forwarding Agent, Savannah, will be forwarded free of commission.

WM. M. WADLEY, Supt.

Savannah, Ga., February 24, 1850.

ENGINEERS' AND SURVEYERS'
INSTRUMENTS MADE BY
EDMUND DRAPER,
Surviving partner of
STANCLIFFE & DRAPER.

No 23 Pear street, near Third, below Walnut, Philadelphia.

GEORGIA RAILROAD FROM AUGUSTA TO ATLANTA—171 MILES.

AND WESTERN AND ATLANTIC RAILROAD, FROM ATLANTA TO DALTON, 100 MILES.

This Road, in connection with the South Carolina Railroad, and Western and Atlantic Railroad, now forms a continuous line, 408 miles in length, from Charleston to Dalton Cross Plains) in Murray county, Ga. 32 miles from Chattanooga, Tenn.

RATES OF FREIGHT.		Between Augusta and Dalton. 271 miles.	Between Charleston, and Dalton. 408 miles.
1st class	Boxes of Hats, Bonnets, and Furniture, per cubic foot - -	$0 18	$0 28
2d class	Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs, and Confectionary, per 100 lbs.	1 00	1 50
3d class	Sugar, Coffee, Liquor, Bagging, Rope, Cotton, Yarns Tobacco, Leather, Hides, Copper, Tin, Feathers, Sheet Iron, Hollow ware, Castings, Crockery, etc.	0 60	0 85
4th class	Flour Rice, Bacon, Pork, Beef, Fish, Lard, Tallow, Beeswax, Bar Iron, Ginseng, Mill Gearing, Pig Iron, and Grindstones, etc. - - -	0 40	0 65
	Cotton, per 100 lbs. -	0 45	0 70
	Molasses per hogshead -	8 50	13 50
	" " barrel - -	2 50	4 25
	Salt per bushel - -	0 18	
	Salt per Liverpool sack -	0 65	
	Ploughs, Corn Shellers, Cultivators, Straw Cutters, Wheelbarrows - -	0 75	1 50

German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Company will be forwarded free of commissions. Freights payable at Dalton.

F. C. ARMS,
44*1y Sup't of Transportation.

CAR MANUFACTORY
CINCINNATI, OHIO.

KECK & DAVENPORT WOULD RESPECTfully call the attention of Railroad Companies in the West and South to their establishment at Cincinnati. Their facilities for manufacturing are extensive, and the means of transportation to different points speedy and economical. They are prepared to execute to order, on short notice, Eight-Wheeled Passenger Cars of the most superior description. Open and Covered Freight Cars, Four or Eight-Wheel Crank and Lever Hand Cars, Trucks, Wheels and Axles, and Railroad Work generally.

Cincinnati, Ohio, Oct. 2, 1848. 44tf

NICOLL'S PATENT SAFETY SWITCH FOR Railroad Turnouts. This invention for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design. It acts independently of the main track rails; being laid down or removed without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two castings and two rails; the latter, even if much worn or used, not objectionable.

Working models of the Safety Switch may be seen at Messrs. Davenport, Bridges & Kirk's Cambridge Port, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained, on application to the Subscriber, Inventor and Patentee.

G. A. NICOLLS,
Reading, Pa.

FOWLER M. RAY'S
METALLIC INDIA RUBBER CAR SPRINGS.

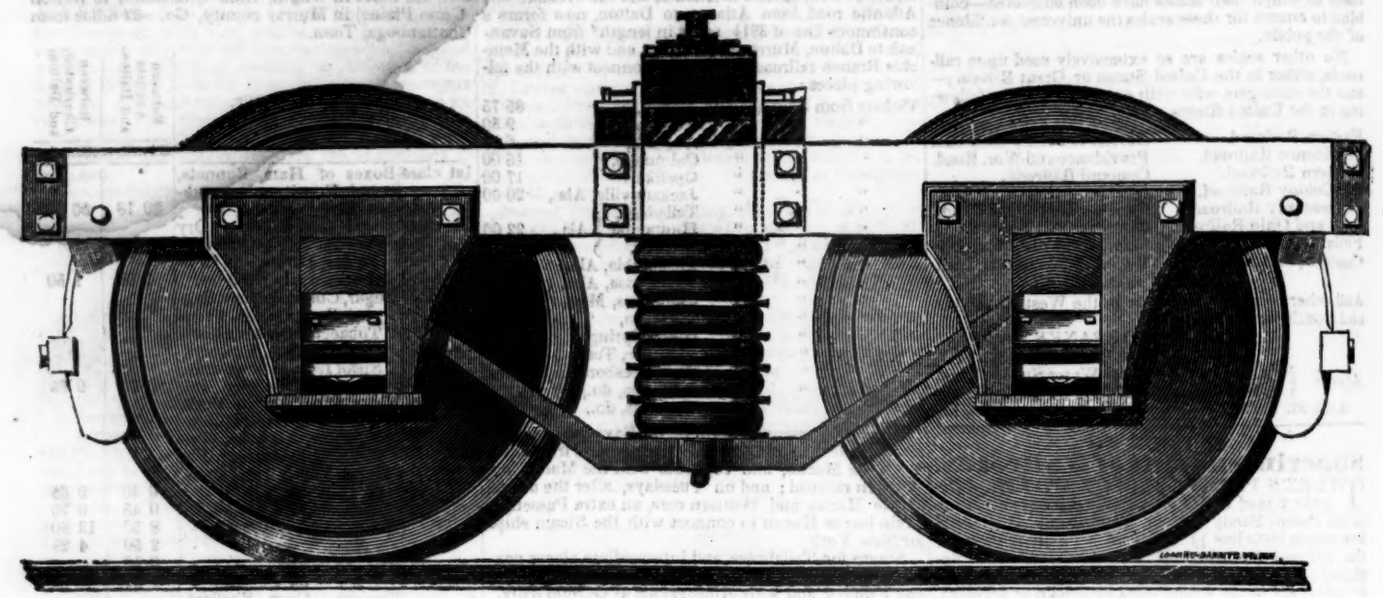


Fig. 1.

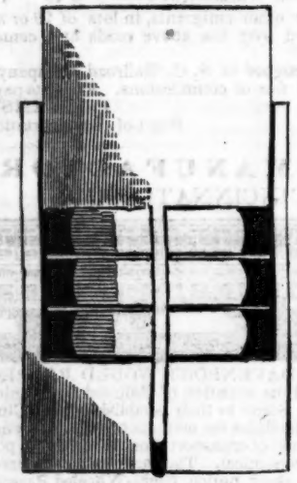


Fig. 2.

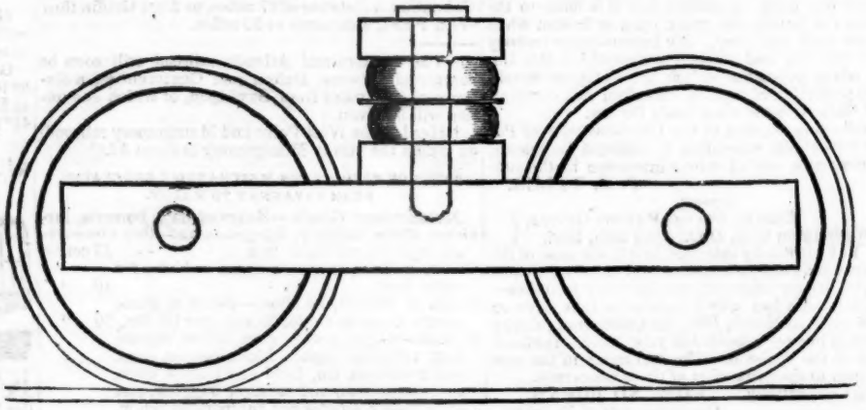
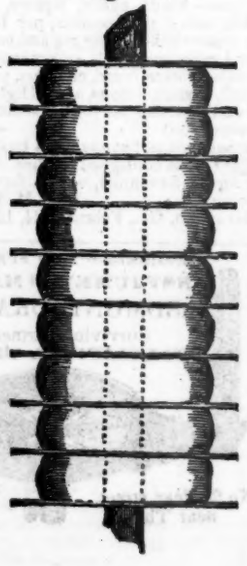


Fig. 3.



So much has been published for the purpose of misleading the public in regard to the inventorship of the India-rubber Railroad Spring, patented in the United States by Mr. W. C. Fuller, that the New England Car Company, proprietors of this invention, have deemed it proper, for the information of Railroad Companies, Car Builders and the public generally, to lay before them the facts upon which they found their claim to this invention, and to a Patent therefor.

Cut No. 1, Represents a cross section of the first model made by Mr. Tucker, under the direction of Mr. Ray, in the summer of 1844, and to which Mr. Tucker, Mr. Bradley and Mr. Bannester testify as being the model marked "B."

Cut No. 2, Represents the model made in 1845, to which Mr. Osgood Bradley and Gen. Thos. W. Harvey have testified.

Cut No. 3, Represents a rough sketch made by Mr. Ray in 1844, which he gave to a man about departing for England to take out some patents, who promised to write to Ray after his arrival in that country—which promise he has probably forgotten.

Mr. W. C. Fuller, of England, patented the above Spring in that country on the 23d October, 1845. He filed his enrollment April 23d, 1846, and on the 22d October, 1846, he took out a patent in the United States under the title, "For Improvement in Railway Carriages," when the improvement consisted in the spring, and not in the carriage.

The reader will perceive by the annexed testimony, that the India-rubber Railroad Car Spring was invented by Mr. Ray about two years previous to the date of Mr. Fuller's enrollment.

The Depositions are omitted for want of room, but will be published in full in the course of a few weeks.

AMERICAN RAILROAD JOURNAL.
PUBLISHED BY J. H. SCHULTZ & CO.
ROOM 12, THIRD FLOOR,
No. 136 Nassau Street,
NEW YORK.

TERMS.—Five Dollars a year, *in advance.*

RATES OF ADVERTISING.

One page per annum	$200 00
One column "	75 00
One square "	20 00
One page per month	25 00
One column "	10 00
One square "	3 00
One page, single insertion	10 00
One column " "	4 00
One square " "	1 50
Professional *Cards* per annum	5 00

☞ LETTERS and COMMUNICATIONS to this Journal may be directed to the *Editor*,
HENRY V. POOR,
136 Nassau Street.